Portal Development Training

Lesson 1: Welcome and Course Overview

Overview

❖ Purpose of the course

❖ Introductions

❖ Logistics

❖ Review course syllabus

Purpose of the Course

❖ To provide an understanding of:

- The enterprise tools available and their function
- Of the EPA Staff who are involved in the Enterprise Architecture
- Systems Engineering Center (SEC)
- The process for building and deploying a portlet or community

❖ At the end of the course, students shall:

- Understand how to build a portlet within the EPA Portal
- Understand how to integrate a portlet with the IAM enterprise tools
- Understand Portal Page Layout processes
- Be a part of EPA's Portal Development Community

Introductions

❖ Teachers

❖ Student

- Who are you?
- What is your background?
- What do you want to get out of these two days?
- What is your favorite flavor ice-cream?

Logistics

❖ Two day long course

❖ Start at 9am and ends around 5pm

❖ There will be one break in the morning and one in the afternoon

❖ Lunch: You're on your own

Course Syllabus Review—Day 1

❖ Lesson 1: Welcome and Course Overview

❖ Lesson 2: EPA Groups and their roles in Portal Application Development

❖ Lesson 3: The Enterprise Architecture

❖ Lesson 4: The EPA Portal and its Offerings

❖ Lesson 5: EPA Portal Look and Feel Standards

❖ Lesson 6: Identity and Access Management System

Course Syllabus Review—Day 1 (cont)

❖ Lesson 7: User Provisioning

❖ Lesson 8: Business Case to for Portal use

❖ Lessons 9 – 16: Software Development Lifecycle

Labs and Demos

❖ Demo: Demonstrate the different aspects of the current version of the Portal

Course Syllabus Review—Day 2

❖ Lesson 17: Day 1 Review and Answer Questions about Day 1

❖ Lesson 18: SEC

❖ Labs and Demonstrations

- Build a page in the Portal
- Oracle Out of the Box Portlets
- Building and Deploying a portlet
- Modifying an existing page

❖ Lesson 20: Development Schedules
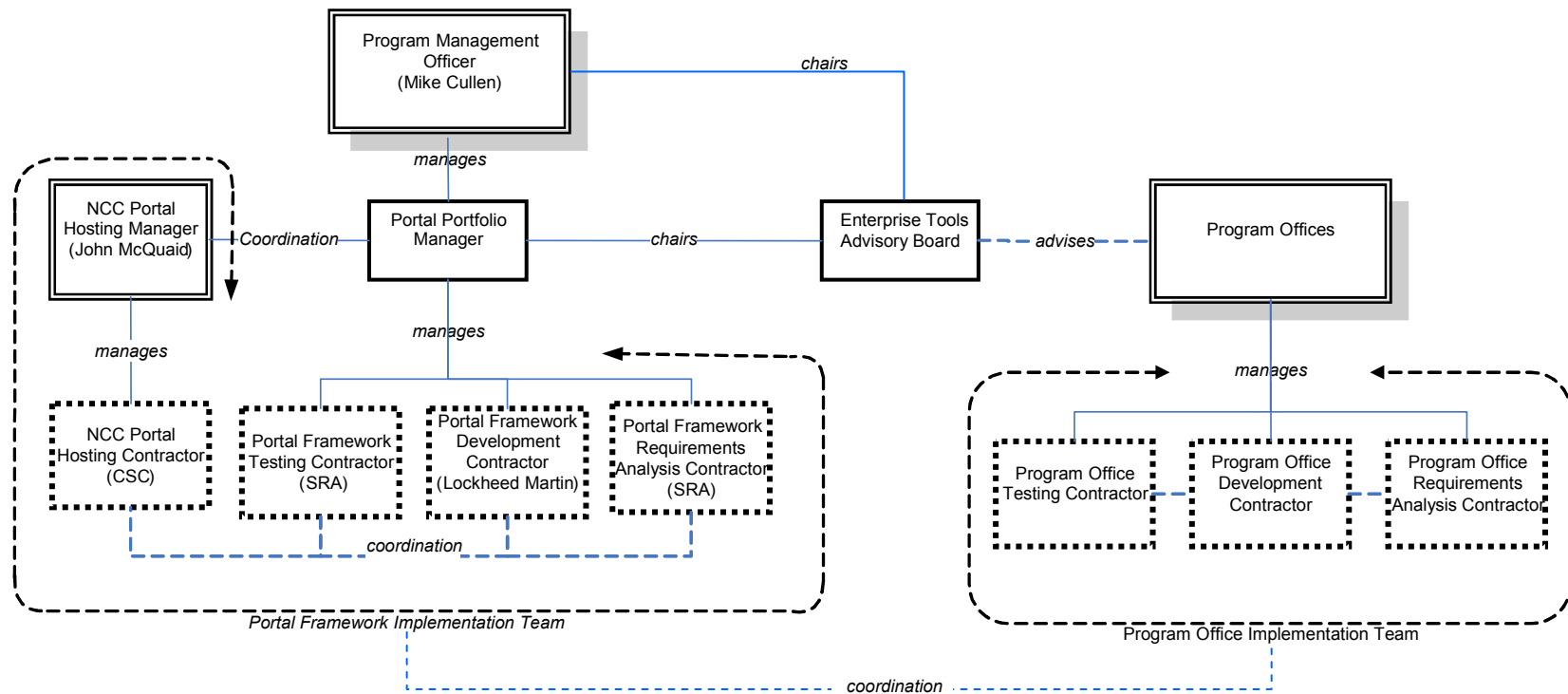
❖ Lesson 21: Course Wrap-up

Lesson 2: EPA Groups and their Roles in Portal Application Development

Overview

- ❖ Portal Management Organization
- ❖ Portal Framework Implementation Team
- ❖ Program/Administrative/Regional Office Implementation Team

Portal Management Organizational Chart

Program Management Officer
(Mike Cullen)

chairs

manages

NCC Portal Hosting Manager
(John McQuaid)

Coordination

Portal Portfolio Manager

chairs

Enterprise Tools Advisory Board

advises

Program Offices

manages

manages

manages

NCC Portal Hosting Contractor
(CSC)

Portal Framework Testing Contractor
(SRA)

Portal Framework Development Contractor
(Lockheed Martin)

Portal Framework Requirements Analysis Contractor
(SRA)

coordination

Program Office Testing Contractor

Program Office Development Contractor

Program Office Requirements Analysis Contractor

Portal Framework Implementation Team

Program Office Implementation Team

coordination

12

Program Management Office

❖ The PMO is led by the PMO Director and Deputy Director

❖ Collects, coordinates, and communicates the design and development of OEI's Enterprise Tools

❖ Has final authority over the development, operations, and maintenance of the Portal

Agency Portal Portfolio Manager

❖ Manage the implementation of the Portal

❖ Coordinates with the PMO and makes decisions regarding the development and implementation details of the Portal

❖ Coordinates with the stakeholders and to oversee the day-to-day operations of the Portal

# Enterprise Tools Advisory Board (ETAB)

❖ Composed of project managers and other key stakeholders who are developing or have developed communities (page groups) within the Portal

❖ The PMO Director, is responsible for leading ETAB activities and acting as ETAB Chair.

❖ The ETAB is responsible for:

- Advising Community leaders about how enterprise tools can satisfy business requirements
- Advising Enterprise Tool Managers about new business requirements
- Advising on standards Reviewing new functionality to identify opportunities for collaboration and reuse
- Providing guidance to Program/Administrative/Regional Offices who are new to the Portal regarding best practices for Portal development

Program/Administrative/Regional Offices

❖ Responsible for developing functionality related to its community (set of pages) within the Portal

❖ Provides input into the standards, policies, changes, and management of the Portal Framework

❖ Participate in ongoing coordination of the Agency's Portal activities

Portal Framework Implementation Team

Portal Portfolio Manager has the overall responsibility for Implementation and Coordination
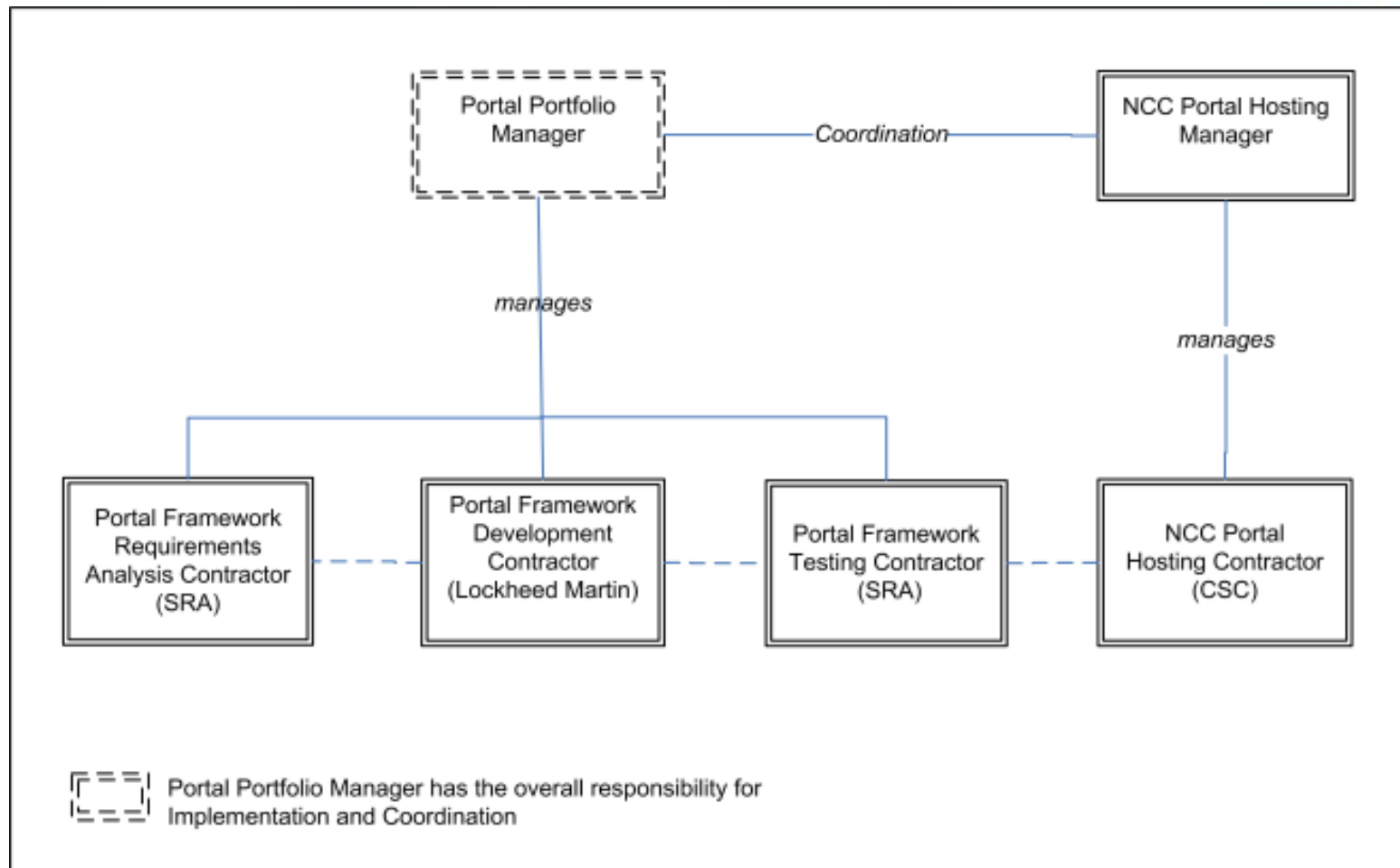
Portal Framework Implementation Team

❖ Responsible for the development, implementation, and management of the Portal Framework and for commonly used functionality. For example:

- Collaborative tools
- Search tools
- General information portlets (news, weather, etc.)

❖ The Portal Framework Implementation Team, and the Portal Portfolio Manager, which is authorized make up the Portal Change Control Board (CCB)

Portal Framework Requirements Analysis Contractor

❖ Ensuring that the common functional requirements are:

- Collected
- Documented
- Analyzed
- Vetted with the Portal Portfolio Manager and ETAB prior to beginning any design and/or development work

❖ Records these in a central Portal Framework Requirements Repository

❖ The Portal Framework Requirements Analysis Contractor is SRA

Portal Framework Development Contractor

❖ Designs the framework technical solution

❖ Implements Portal Framework designs after approval from the Portal CCB

❖ Maintains its development and testing environments at the Systems Engineering Center (SEC) in Arlington, Virginia

❖ The current Portal Framework Development Contractor is Lockheed Martin
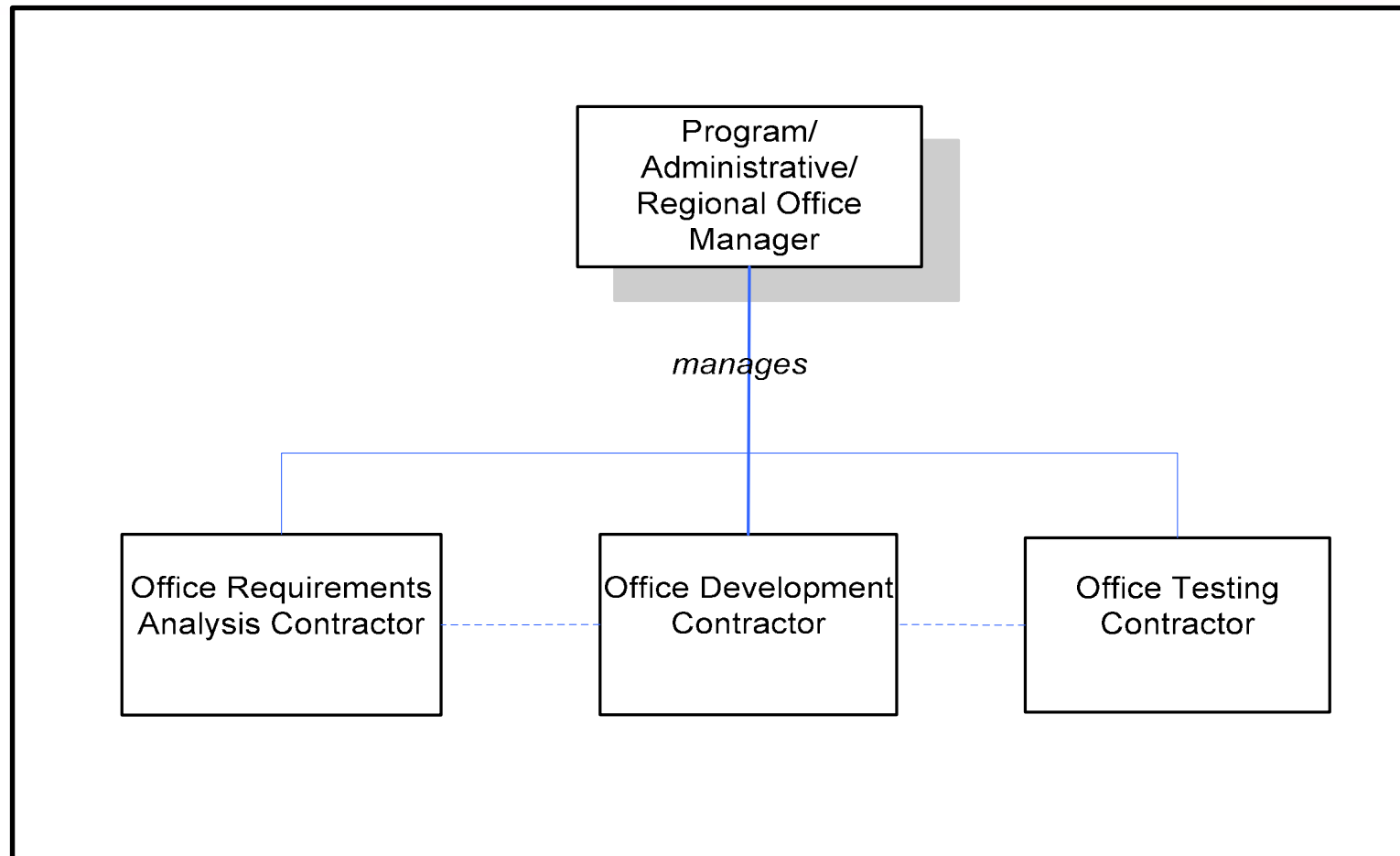
Portal Framework Testing Contractor

❖ Responsible for performing integration testing and <u>Independent Validation & Verification</u> (IV&V) after any new development occurs on the Portal Framework

❖ Ensure that new functionality meets the requirements in the Portal Framework Requirements Repository

❖ Verifies that the new functionality does not negatively impact any existing functionality

National Computer Center Portal Hosting Manager

❖ Ensures that the environment provided by the NCC to host the Portal Framework is technically capable of supporting the solution and the expected user load

❖ Provides information on the technical feasibility, costs, and impacts of changes to the underlying technical infrastructure that supports the Portal

❖ Implementing the underlying technical environment (staging and production) required to support the Portal Framework. This includes:

- Design of underlying network
- Hardware
- Software infrastructures

❖ The National Computer Center Portal Hosting Manager is CSC

Program/Administrative/Regional Office Implementation Team

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                    ┌─────────────────────┐
                    │      Program/       │
                    │   Administrative/   │
                    │  Regional Office    │
                    │      Manager        │
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                               │
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│ Office Requirements│ │ Office Development│ │  Office Testing  │
│ Analysis Contractor│ │    Contractor    │ │   Contractor     │
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Program/Administrative/Regional Office Implementation Team

❖ Implements of the functionality required by a specific community, including any pages or portlets controlled by that community

❖ Coordinates its development activities with the larger Portal Framework Implementation Team

❖ Software change coordination will be handled through the ETAB

Program/Administrative/Regional Office Requirements Analysis Contractor

❖ Is responsible for:

- Performing functional requirements collection

- Documentation

- Analysis

- Vetting with the ETAB

❖ Maintains its own requirements repository

❖ Informs the appropriate manager in the Program/Administrative/Regional Office and have the issue addressed by the ETAB

Program/Administrative/Regional Office Development Contractor

❖ Develops the pages, portlets, and communities specified by the Program/Administrative/Regional Office Requirements Analysis Contractor

❖ Develops functionality based on its own requirements

❖ Obtains and shares information for reusing Portal components and integrating the Office's functionality with the Portal Framework

❖ Develops the functionality such that it shall work in the Portal Framework and not affect any existing components of the Framework

Program/Administrative/Regional Office Testing Contractor

❖ Ensures that the pages, portlets, and communities implemented by the Program/Administrative/Regional Office Development Contractor meet the specifications

❖ Performs unit, system, integration, and/or IV&V testing for the specific pages, portlets, and communities under the control of the respective Office only

Lesson 3: The Enterprise Architecture

Overview

❖ Enterprise Target Application Architecture
❖ Pieces of the Enterprise Architecture
  - Portal
  - Central Data Exchange (CDX)
  - Registry Services
  - Extract, Transform and Load Tools (ETL)
  - Geospatial Services
  - Identity and Access Management
  - Business Intelligence and Analytics
  - Analytical Capability and Tools
  - EnviroFlash
  - Enterprise Content Management System (ECMS)
  - Web Services Publishing House

Target Applications Architecture:
Modernization Blueprint focused on Data Integration
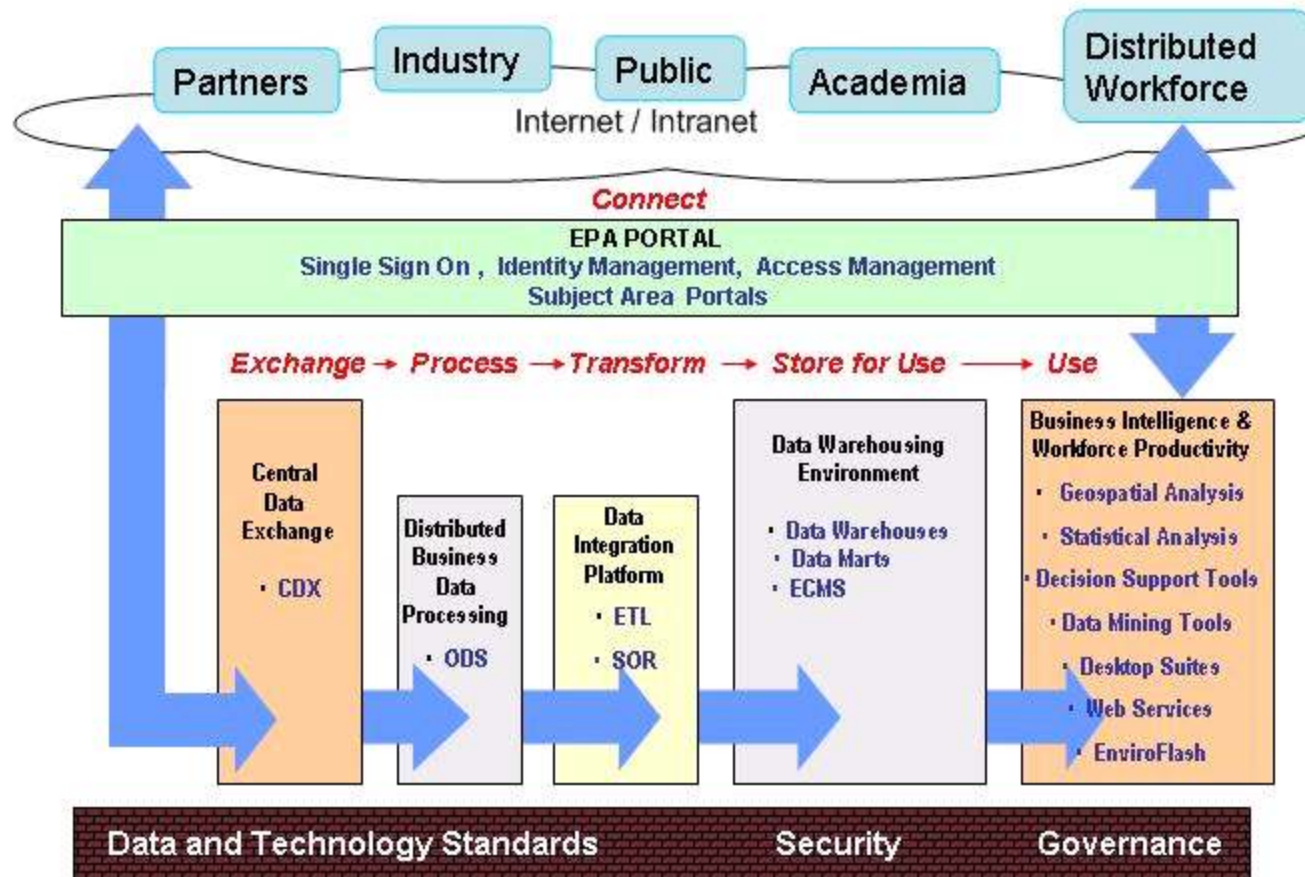
EPA Portal

❖ A dynamic and personalized Web system that provides EPA users:

  - Environmental information
  - Analytical tools and data reports
  - Security controls
  - Document sharing
  - Collaboration services

❖ The Portal is the one-stop source of information on Environmental Health, Environmental Sciences, and Human Health Protection

❖ The Portal will be the single URL for Agency business partners to trade information and conduct business with EPA

Central Data Exchange (CDX)

❖ A system based on Web Services and open standards that facilitates the exchange of information between EPA's external partners, stakeholders and the Agency's programs

❖ CDX is EPA's "Node" on the Environmental Information Exchange Network (Exchange Network)

❖ CDX provides centralized information collection functions, including

- Registration
- Security
- Validation and verification
- Archival
- Translation

Registry Services

❖ System of Registries (SoR) is an integrated set of services and tool for registration and management of metadata about EPA's information resources and objects

❖ Environmental Data Registry
  - Contents: Data elements and code sets organized by concept and value domain; EPA data standards
  - Services: Data dictionary publication; data harmonization with compare tool; future web services for translation of code sets

❖ Environmental Terminology System and Services
  - Contents: Environmental terms, glossaries, term sets, glossaries, taxonomies, and vocabularies
  - Services: Support for developing term sets, managing existing vocabularies, and web services to refresh those vocabularies in EPA systems

❖ Registry of EPA Applications and Databases
  - Contents: EPA System Inventory
  - Services: Support for EPA enterprise architecture, data standards, capital investment planning, security, and privacy functions

Registry Services

❖ Extensible Markup Language (XML) Registry

- Contents: Reusable XML Schema for use on the Exchange Network and elsewhere in the EPA information technology environment
- Services: Schema review and validation

❖ Substance Registry System (SRS)

- Contents: Metadata about chemicals, biologicals, and waste
- Services: Web services to allow for validation of chemical lists and transfer of chemical metadata to agency and partner systems

❖ Facility Registry System (FRS)

- Contents: Metadata about facilities found in EPA data systems
- Services: Validation of data for EPA data submitters

Extract, Transform and Load (ETL) Tool

❖ The ETL tool extracts data from a wide variety of source databases including:
  - Legacy files
  - Relational databases
  - ERP sources
  - Flat files
  - Internal and external Web Services

❖ The ETL Tool:
  - Profiles and cleanses the data and identifies data anomalies
  - Transforms the data, computes summaries and aggregates, and computes any derived data
  - Loads the data into the target data warehouses and marts

❖ Data marts can be accessed by Business Intelligence tools that provide integrated query, reporting, and analysis capabilities

Geospatial Services

- ❖ Geospatial services leverage geospatial investments for EPA by providing coordinated discovery, management, and delivery of geospatial data
- ❖ The Geospatial Program supports the geospatial component of the federal and Agency enterprise architecture
- ❖ The Geospatial Program provides effective external representation of EPA's geospatial interests in the government-wide National Spatial Data Infrastructure and Geospatial One-Stop initiatives
- ❖ These services provide EPA, its partners and the public with the geospatial data they need to carry out EPA business processes and make environmental decisions

Identity and Access Management (IAM)

❖ IAM is a central, enterprise-level infrastructure to provide directory-enabled user management, authentication, and authorization services to EPA information systems

❖ Implementation of this infrastructure will:
- Enhance security
- Substantially reduce overall administration costs
- Accelerate application development and deployment
- Reduce expenses

❖ IAM will improve user experience by:
- Reduction in number of discrete identities
- Self-service registration requests and password resets
- Reduced/single sign-on

Analytical Capability and Tools

❖ Analytical Capability and Tools and decisions support services are a set of applications and tools that:

- Permit EPA staff and Agency partners to conduct cross-cutting analyzes of environmental and health issues
- Examining long-term trends

❖ Sample tools include the Emergency Response Analyzer and an Executive Management Dashboard

EnviroFlash

❖ Is a Web based system designed to provide a valuable health service to your community

❖ Pushes air quality forecasts and notifications to subscribers via email

❖ Provides important air quality information such as forecasts and action day notifications via email or pager notification

❖ Is a pilot program, sponsored by the EPA with State and local air quality agencies

❖ Facts about EnviroFlash:

- EnviroFlash is a customizable e-mail subscription service built using Central Data Exchange (CDX) technology

- The notification and subscription services provided by EnviroFlash can be applied to other information systems to facilitate announcements or notifications to the public or business-related Agency partners

- EnviroFlash is available today and can be modified and re-branded to meet the needs of your specific Program Office or Region

Enterprise Content Management System (ECMS)

❖ ECMS establishes a framework to provide electronic enterprise-wide content management

❖ ECMS enables the following capabilities to allow EPA employees to capture, manage, publish, and archive electronic information to support business operations:

- Process Services: Collaboration, Workflow
- Content Services: Document, Web, and E-mail Management
- Repository Services: Records Management, Archival/Disposal
- Integration Services: Content Availability to Applications through API

Web Services Publishing House

❖ The Universal Description, Discovery and Integration (UDDI) protocol is one of the major building blocks required for successful Web services.

❖ UDDI creates a standard interoperable platform that enables applications to quickly, easily, and dynamically find and use Web services over the Internet.

❖ Benefits:

- Reaching new customers, both internal and external
- Increasing access to information to current stakeholders
- Solving customer-driven needs to remove barriers to allow for rapid information sharing between Program Offices and Regions and external EPA partners
- Describing Program Office and Region service-related business processes programmatically in a single, open and secure environment

Enterprise Tools

Lesson 4: The Portal and All it Has to Offer

Overview
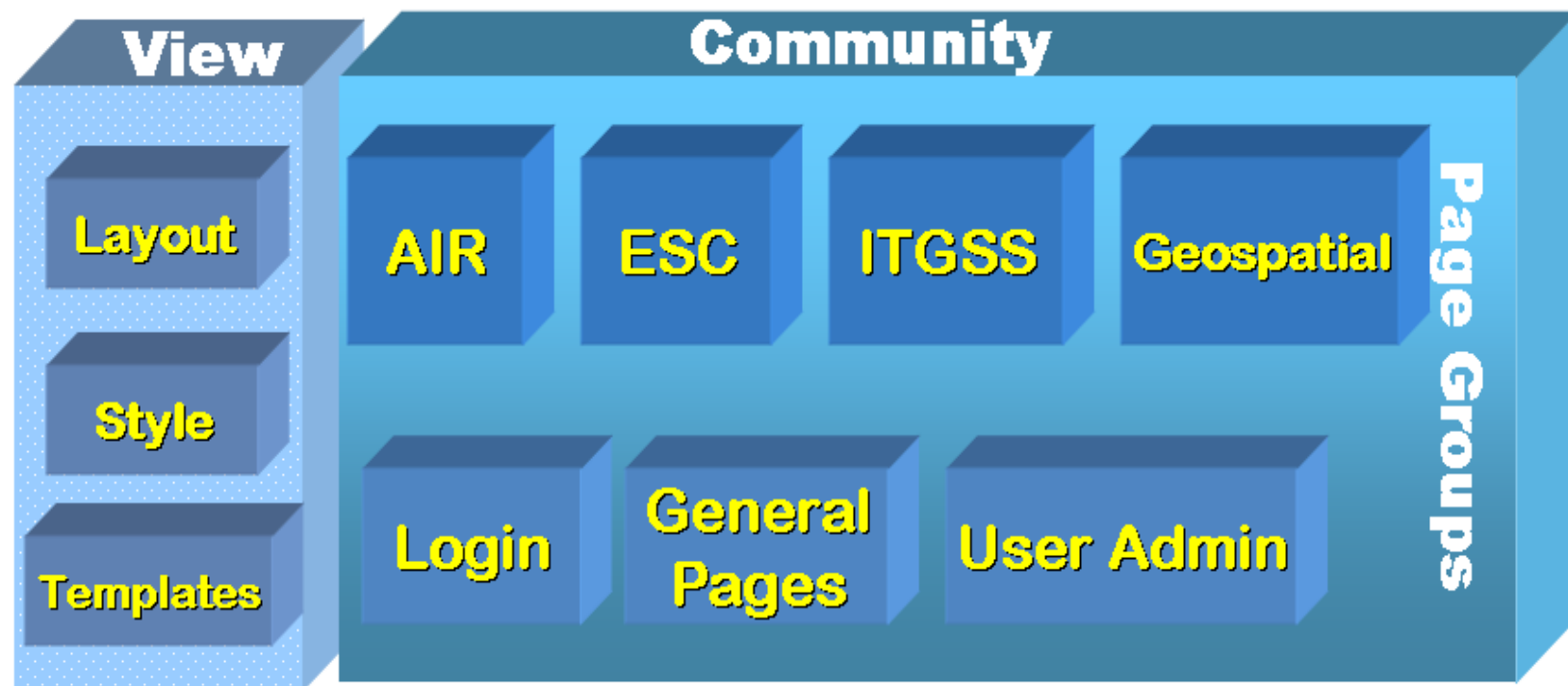
❖ Purpose of the Portal

❖ EPA Portal Architecture

❖ EPA Portal Components Overview

❖ Available Portlets

❖ Oracle Collaboration Suite (OCS)

❖ The Different Portal Environments
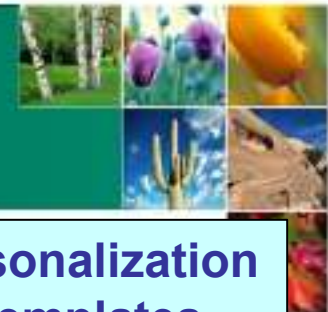
What is the Purpose of the EPA Portal?

❖ The EPA Portal was created to meet the following business needs:

- Improved organization and discovery of information resources - community paradigm
- Improved framework for internal/external communication and collaboration
- Enhanced access control to information resources
- Integrated application development environment
- Reduced time to market
- Data sharing and Integration
- "One Stop Shop" concept

EPA Portal Architecture

View
- Layout
- Style
- Templates

Community

Page Groups
- AIR
- ESC
- ITGSS
- Geospatial
- Login
- General Pages
- User Admin

Common Services
- Identity
- Collaboration
- Search
- Report

EPA Portal Components Overview

- ❖ **Authentication**
- ❖ **Authorization**
- ❖ **Delegated admin**
- ❖ **User provisioning**
- ❖ **Self-registration**

- ❖ **Personalization**
- ❖ **UI Templates**
- ❖ **Taxonomy**
- ❖ **Portlets**

Oracle CoreID

Oracle Application Server 10g

Agency Portal
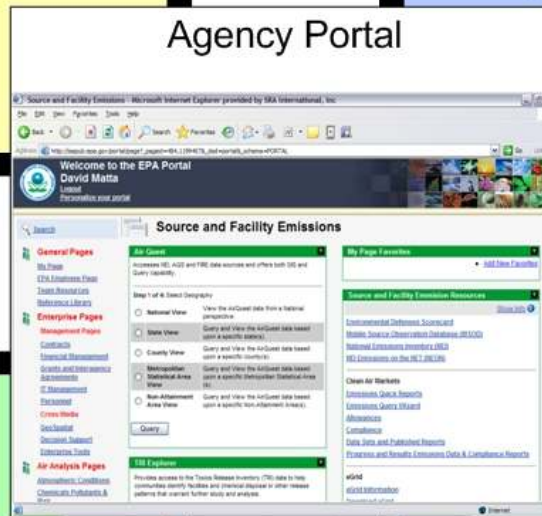
- ❖ **Common LDAP store for internal and external users**

Oracle Internet Directory

Oracle Collaboration Suite

- ❖ **Discussion forum**
- ❖ **Events**
- ❖ **Web conference**
- ❖ **Messaging**

Potential EPA Portal Communities

EPA Portal
Create.
Customize.
Collaborate.

OAR

ORD

ITGSS

Region 5

EPA @ Work

Brown-fields

OW

OEM

Program-Specific

Super-fund

EPA Portal Technical Community

TRI

CDX

Geospatial

Work @ Home

ECMS

Legend

Developed & Potential Enhancements

Potential

❖ There are two types of portlets available for developer use:

- Oracle framework portlets
- Custom developed portlets

❖ The Oracle 10gAS Portal provides an array of built-in portlets that developers can use. Some examples are:

- **OMNI Portlet** – Data query and discovery
- **Web Clipping Portlet** – Presents pre-defined web content

Available Portlets—Oracle Provided (cont)

- **HTML Portlet** – Displays custom HTML

- **Simple Parameter Form** – Simple Form Submission

- **Search Portlets** – Enables users to conduct different types of searches and manage the results

- **Favorites** –Quick access to user's favorite Web pages

❖ Oracle provides a Portal Catalog for other portlets at http://portalcatalog.oracle.com

Available Portlets—Custom Built

❖ Leveraging custom built portlets provides an opportunity to re-use code developed by others across the agency saving:

- Development cost
- Time to deployment

❖ Developers can include a custom built portlets on pages that you build

❖ Developers must work with the portlet owner if you wish to modify a custom built portlet

❖ A full catalog of available custom built portlets can be obtained from Lockheed Martin

Oracle Collaboration Suite (OCS)

❖ OCS is an integral part of the EPA Portal framework that allows users to work together through:
  - Discussion boards
  - File sharing
  - Calendar
  - Instant messaging

❖ OCS is fully integrated with EPA's Enterprise Identity and Access Management (IAM) solution to enable single sign-on to all the resources

❖ OCS provides a foundation for collaboration, communication, and content services

❖ Accessed via portlets or web services

Collaboration Components

The EPA Portal Collaboration Services build on Oracle Collaboration Suite (version 10.1.2):

- Currently enabled:
    - Workspaces
    - Calendar
    - Content Services
    - Discussions
    - Real-Time Collaboration
- *Not enabled:*
    - *Mail*
    - *Mobile Collaboration*
    - *Search*
    - *Voicemail & Fax*

The Different Portal environments

- ❖ **Development**
  - At contractor's location
  - At SEC
- ❖ **QA LAN @SEC**
  - EPA Portal system integration and testing
- ❖ **Staging Environment @NCC**
  - User Acceptance Testing
  - IV & V
  - Java Security Review
- ❖ **Production Environment @NCC**
  - Production migration

Portal Demo

Lesson 5: Portal Look and Feel Standards

Standards Overview

❖ Look and Feel

❖ Taxonomy

Look and Feel

❖ Page Regions:

- Header

- Footer

- Left navigation

- Body

❖ Portlet Standards:

- Resource Portlets

- Single Function Portlets

- Multi-Feature portlets

Look and Feel

Look and Feel: Page Regions—Header

❖ Contains the EPA seal on the left

❖ The Portal Branding image on the right

❖ Welcome Message to the user

❖ Personalize your Portal and Logout links are fixed and can not be altered

❖ This banner is standard across all Portal pages

Look and Feel: Page Regions—Footer

❖ Contact Us

❖ Privacy

❖ Security Notice

❖ Portal Help links

❖ These links are maintained by the Portal Framework Implementation Team

❖ Cannot be modified by the user or Program/Administrative/Regional Office Portal Implementation Teams

Look and Feel: Page Regions—Left Navigation

❖ The navigation bar includes a link to:
  - Portal Search
  - General pages links
  - Other Community pages
  - The General Pages include
    - My Page
      - Allows users to customize their Portal experience
    - EPA Employee Page
      - Provides access to administrative applications that any EPA employee would need access to regardless of their Program or Regional office.
    - Team Resources Page
      - Provides access to systems, applications and shared workspace in order for staff to communicate and collaborate in an effective and timely manner
    - Reference Library Page
      - provides access to reference materials including news resources, journal articles, regulatory documents, policy and guidance materials

Look and Feel: Page Regions—Body

❖ The page body standard is a two-column layout

❖ Standard width of 450 pixels

❖ The left column should be used to place portlets that directly link to systems (e.g. Air Quality System or EnviroFacts)

❖ The My Favorites portlet is fixed at the top of the right column and can't be changed

❖ Portlets that contain reference links to external sources to open in a new browser window can be positioned in the right column beneath the My Favorites portlet

Look and Feel: Portlet Standards

❖ There are three types of portlets available: Resource, Single Function, Multi-Feature

- Resource Portlets
  - Portlets that display links to information, applications, systems, tools etc, but do not display functionality within the portlet
- Single Function Portlets
  - Portlets that provide a single function that is simple enough to display entirely within the portlet
- Multi-Feature portlets
  - Portlets that access a single system, application or tool that provides various types of functionality (e.g., Air Explorer, Integrated Risk Information System (IRIS), etc) that are too complex to display entirely within the portlet

Look and Feel: Style

❖ All developers need to use the consistent colors that are associated with the Navigation Heading, Portlet Heading, Purpose Statement and Info Bar

Look and Feel: Style

Look and Feel: Style

Portal Object	Background Color	Text Color	Font Face	Font Size	Font Style
Portlet Header	#009933	*#FFFFFF*	Arial, Helvetica	10	Plain
Purpose Statement	#F6F6F6	*#000000*	Arial, Helvetica	9	Plain
Info Bar	#F6F6F6	#000000	Arial, Helvetica	9	bold
Navigation Heading	*#F6F6F6*	#FF0000	Arial, Helvetica	11	bold

Hierarchical Taxonomies

❖ At the top of the hierarchy is a small set of very general categories (e.g. air, business opportunities, etc.)

❖ Each top level category is broken down into more specific sub-categories until only a few assets exist in each category

❖ A hierarchical taxonomy allows the user to quickly reduce the number of items that they must evaluate to an easily manageable number of possibilities

Taxonomy Types

❖ Mono-hierarchical vs. Poly-hierarchical Taxonomy

❖ Mono-hierarchical

- There is only one organization of vocabulary
- Individual assets may be classified into multiple categories and subcategories
- The end user must have some understanding of design of the hierarchy of categories in order to understand where to start looking for information useful to their needs

❖ Poly-hierarchical taxonomy

- Has multiple structures for categories and sub-categories
- End user could follow any logical path of categories, sub-categories and still reach the desired end result

❖ The current incarnation of the Taxonomy Standard is mono-hierarchical

Categorizing New Portlets

❖ All Portal functionality (e.g., portlets, Web links, etc) must be categorized within the taxonomy

❖ To do this

  • Provide the Web Infrastructure Group with their completed requirements

  • The requirements must contain descriptions of the functionality provided in each portlet and each Website accessed through that communities Portal pages

  • The Web Infrastructure group will assign functional key words (categories and perspectives) to each portlet and Web link

❖ This process typically takes several weeks and should be included in any development planning

Lesson 6: Identity and Access Management System

Overview

❖ Agenda

- IAM Overview
- IAM Architecture
- How To Integrate with IAM
- Program Office Communications

Why Use a Enterprise IAM System?

❖ IAM supports internal and external users by providing the ability to:
  - Access multiple Partner Program Office systems without separate logins
  - Assign roles that govern the information a user can access
  - Request access to additional Portal Communities and Workspaces with a single request
  - Maintain identity store with unique identity information for each user – internal and external – for use by various applications
  - Improve security by "de-provisioning" users from multiple applications quickly

❖ Using IAM assures compliance with the Target Application Architecture (TAA) for user management and access control

❖ Using IAM ensures compliance with Agency and Federal Security mandates and rules

❖ Who should use IAM?
  - Anyone building a system that requires user access control.
  - Any system that requires a user ID and password for logging on.

People/Groups Involved with IAM

❖ EPA Staff
  - Maja Lee: IAM Portfolio Manger
  - Jody Zeugner: Security Architect
  - Mike Cullen: Program Management Officer

❖ EPA Groups
  - PMO: Coordinates IAM Activities
  - EDSD: Owner of the source information that populates IAM
  - OARM: Owner of the Human Resources source systems
  - NCC: Oversees the operations and hosting of the IAM system

❖ Contractors
  - SRA: Collects and tracks requirements for changes to the IAM system
  - Lockheed Martin: Designs and implements changes to the IAM system
  - CSC: Operates and maintains the IAM system

IAM Conceptual Architecture

IAM Layered Architecture:

❖ **EPA Protected Services** – The systems that are being protected

❖ **IAM Framework Service Layer** – Provides business services to protect EPA applications

❖ **Data Management Layer** – Provides a common information model to aggregate user and group attributes.

❖ **Identity Layer** – EPA's authoritative data sources.

EPA Protected Services

| EPA Portal | CDX | ECMS | Data Warehousing Services | Business Intelligence & Analytics | Geospatial Services |

IAM Framework Services Layer

| Authentication Services | Authorization Services | Self-Registration | Provisioning Services | Delegated Administration |

COREid Access Server | COREid Identity Server

Data Management Layer

Common Information Model

Oracle Internet Directory | Meta-Directory Synchronization

Identity Layer

Active Directory | Novell eDirectory | Domino Directory | Peoplesoft HR

ENTERPRISE TOOLS WORKSHOP

Directory Synchronization

Current Directory Structure

OARM Responsibility
- Peoplesoft HR

NCC Responsibility
- Portal Services
- COREid Identity & Access Management

EDSD Responsibility
- SIMTree
- Novell LAN Directory → Novell Network
- Active Directory → Active Directory Network
- Lotus Notes Directory → EPA Lotus Notes Email
- Oracle Internet Directory

Classes of Users
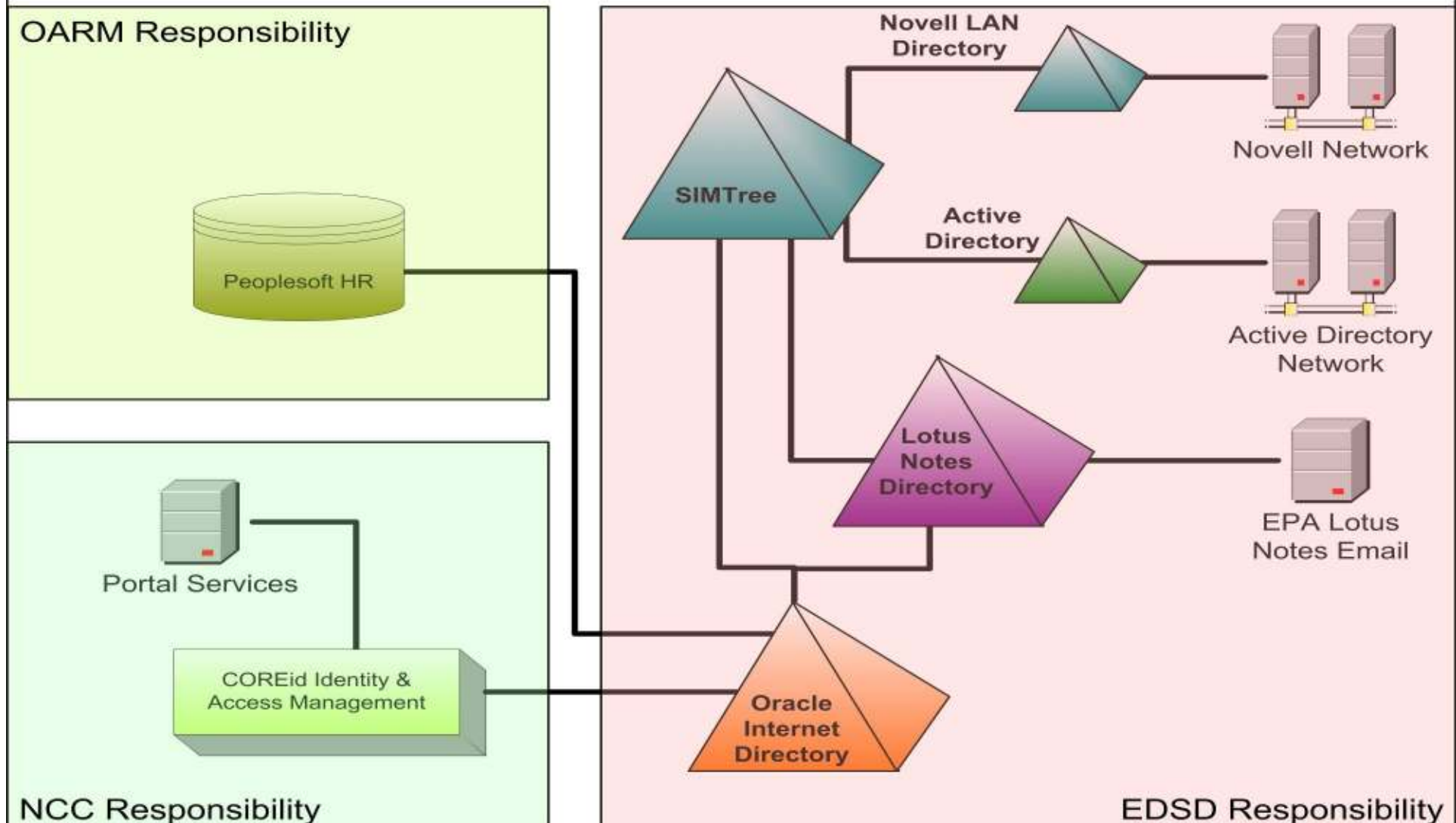
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┌─────────────────────┐
│                     │
│       Oracle        │
│      Internet       │
│      Directory      │
│                     │
└─────────────────────┘
      ↙    ↓    ↘
┌────────┐ ┌──────────┐ ┌──────────┐
│  EPA   │ │ Internal │ │ External │
│ Staff  │ │Affiliates│ │  Users   │
└────────┘ └──────────┘ └──────────┘
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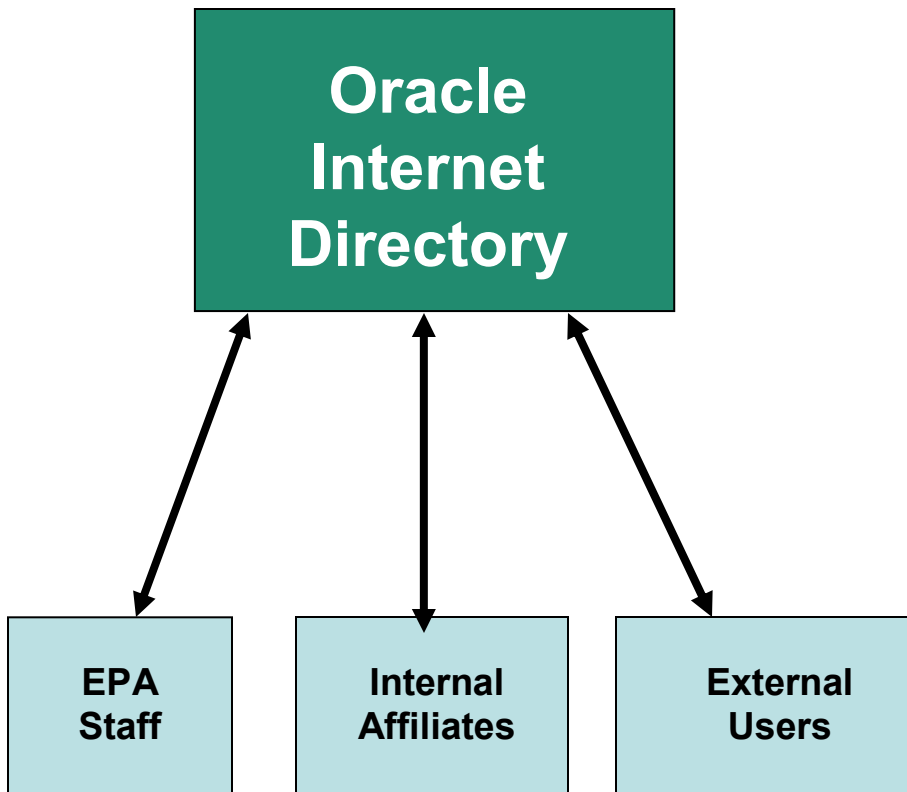
❖ **EPA Staff** – People who are hired by the EPA

❖ **Internal Affiliates** – On-site workers who are eligible for a "Smart Card"

❖ **External Users** – Anyone who works on behalf of EPA for compensation, but does not have an EPA email address, including off-site contractors, environmental laboratory technicians, etc. Also includes business partners who work in conjunction with EPA, including researchers, regulated industry, other government officials, etc.

Example User Class (EPA Staff)

Name of the field	Proposed Authoritative Source of Data	Name of the field	Proposed Authoritative Source of Data
Email Address	Domino Directory	Password	SIMTree – Will not be stored in OID, but accessed via authentication plug in from SIMTree at run-time
EPA Organization/Office	Peoplesoft HR	Phone Number	Peoplesoft HR
Group Membership	Assigned in OID	Region	Derivable from SIMTree
Login ID	SIMTree	SIMTree DN	SIMTree
Lotus Notes DN	Domino Directory	Status	Peoplesoft HR
Office Acronym	Under investigation.	Unique CN attribute	Generated from existing OID fields
Office Address	Peoplesoft HR	Unique DN attribute	Generated from existing OID fields
Office City	Peoplesoft HR	User First Name	Peoplesoft HR
Office Postal Code	Peoplesoft HR	User Last Name	Peoplesoft HR
Office State	Peoplesoft HR	Workforce ID	SIMTree

Integration Overview

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│   Develop User   │
│  Mgmt Practices  │
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│    Plan User     │
│    Migration     │
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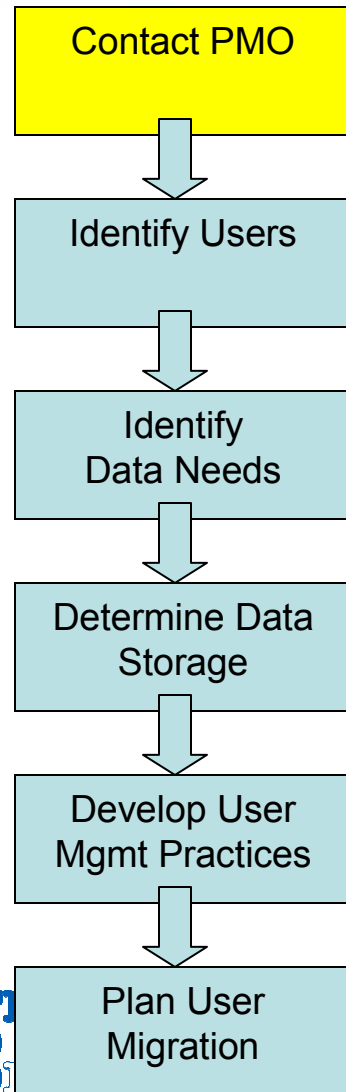
❖ **Maja Lee** - Directly responsible for the implementation of the IAM system

- Coordinates data needs to ensure consistent, non-repetitive data in the Oracle Internet Directory
- Executes MOUs to ensure that all security policies are understood and agreed to
- Schedules changes to the IAM system to avoid conflicts and minimize downtime
- Reviews all system updates to ensure compatibility across partner systems
- Provides technical support services and training

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OFFICE OF ENVIRONMENTAL INFORMATION

Integration Overview

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│   Plan User     │
│    Migration    │
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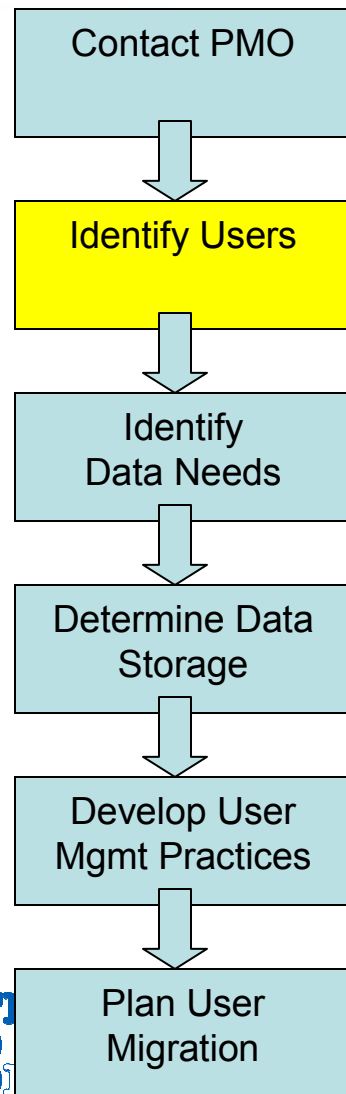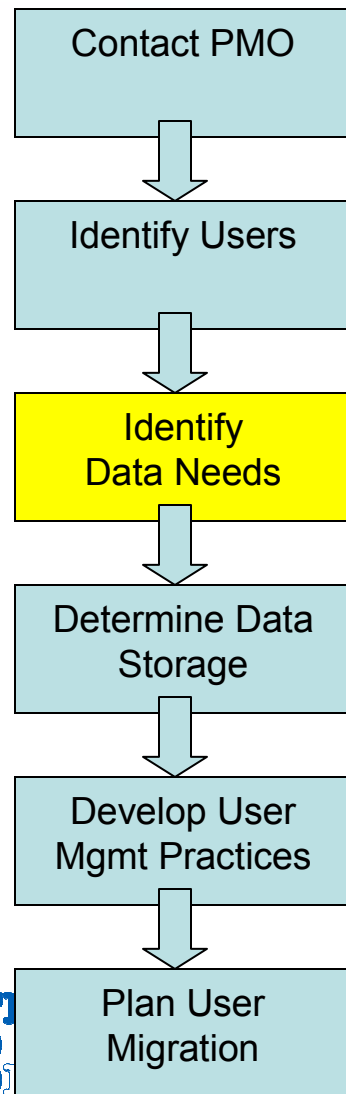
❖ **Identify Users**

- Determine the end users of the application

- Map users to their respective types in IAM (internal, inside affiliate, external)

- Identify any orphan user classes and work with PMO to address concerns
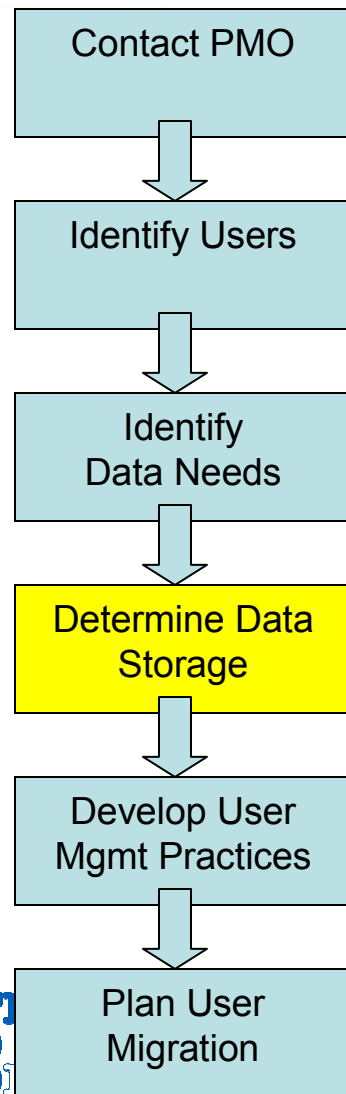
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Integration Overview


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Contact PMO
    ↓
Identify Users
    ↓
Identify
Data Needs
    ↓
Determine Data
Storage
    ↓
Develop User
Mgmt Practices
    ↓
Plan User
Migration
```

❖ **Identify Data Needs**

- For each user class, what information do you need to know about a specific user

- What information is not already provided by the base users classes

- Refer to current OID Data Dictionary available from PMO for base user class definitions

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Contact PMO

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Identify Users

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Identify
Data Needs

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**Determine Data
Storage**

↓

Develop User
Mgmt Practices

↓

Plan User
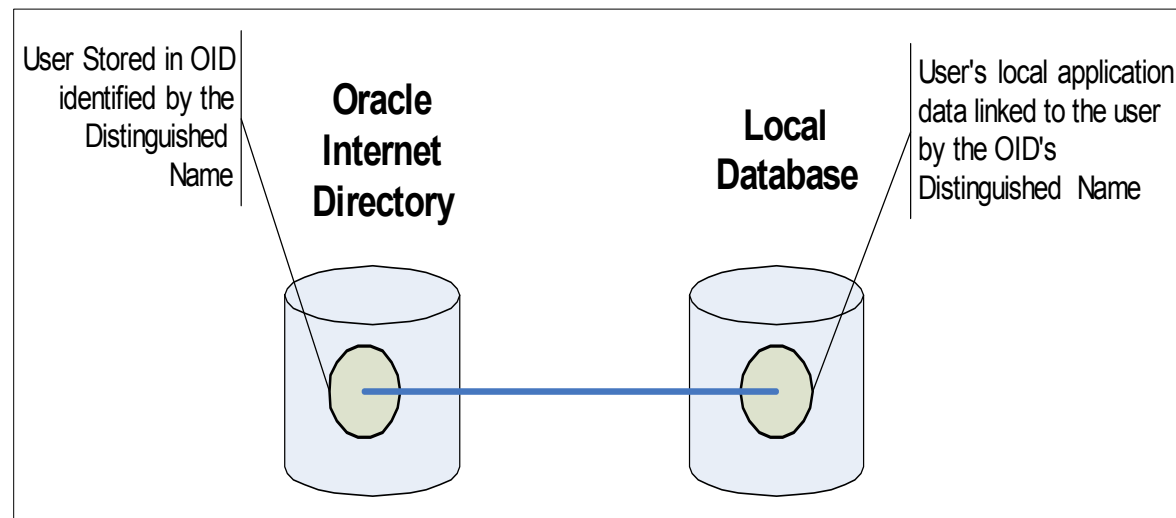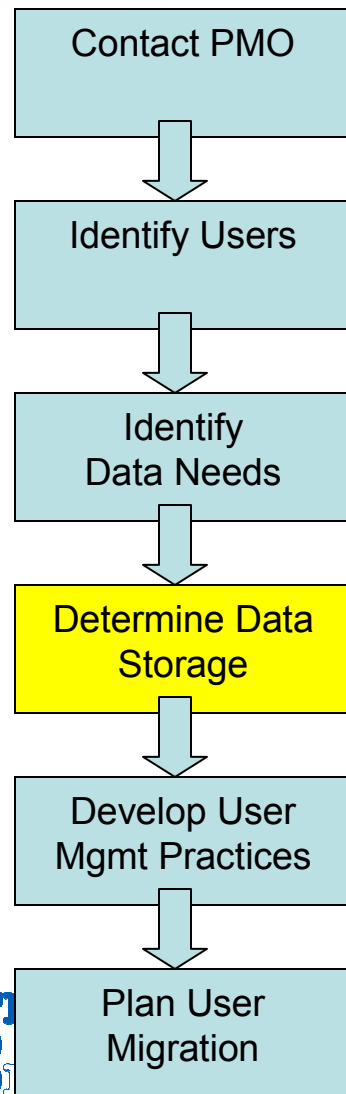Migration
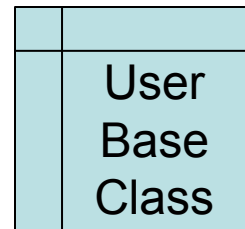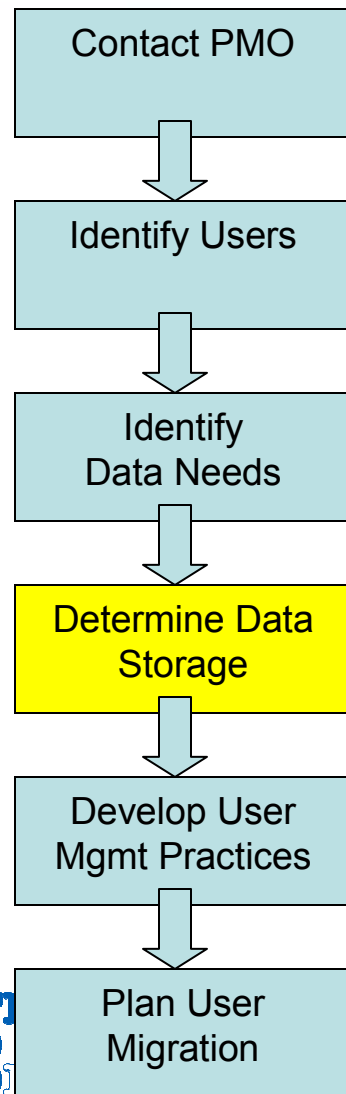
❖ **Determine Data Storage**

- If there is data not provided by the base users classes, where to store that data?

- Are there different storage needs dependent on the different types of users?

- How to link user data to system data?

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Where to Store Application Specific Data: Store Locally

Contact PMO

Identify Users

Identify Data Needs

Determine Data Storage

Develop User Mgmt Practices

Plan User Migration

User Stored in OID identified by the Distinguished Name

Oracle Internet Directory

Local Database

User's local application data linked to the user by the OID's Distinguished Name

❖ In the application database using unique user key

- User specific application data can be locally stored and link to IAM through the Distinguished Name field

OFFICE OF ENVIRONMENTAL INFORMATION

Where to Store Application Specific Data: Extend CoreID

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Contact PMO
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Identify Users
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Identify
Data Needs
     ↓
Determine Data
Storage
     ↓
Develop User
Mgmt Practices
     ↓
Plan User
Migration
```

| User Base Class | → | Application Specific Class |

A user's base class can be either:
-EPA Employee
-Inside Affiliate
-External User
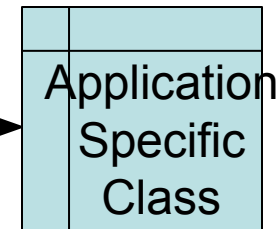
The Application Specific class is used to extend the base class to include Data needed by a single application or group of apps.

❖ Extend the OID user classes
- Additional application data fields are added to OID by adding additional data classes
- Attaching the different data classes to a specific user extends that user's information to provide the specific application data

Contact PMO

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Identify Users

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Identify Data Needs

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Determine Data Storage
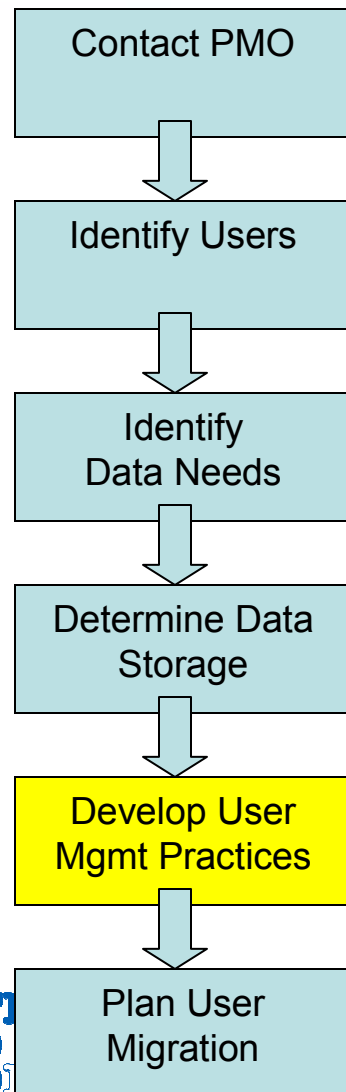
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Develop User Mgmt Practices

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Plan User Migration
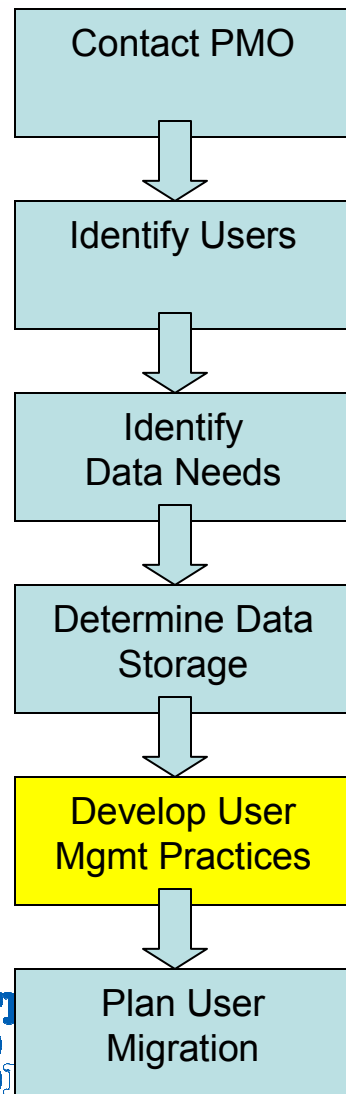
❖ **Develop User Management Practices**

- Use the COREid Tools to manage user information?

- Develop custom processes via IAM Web Services?

- Develop custom processes through COREid API?

- Direct LDAP integration with OID?

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OFFICE OF ENVIRONMENTAL INFORMATION

Contact PMO

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Identify Users

↓

Identify Data Needs

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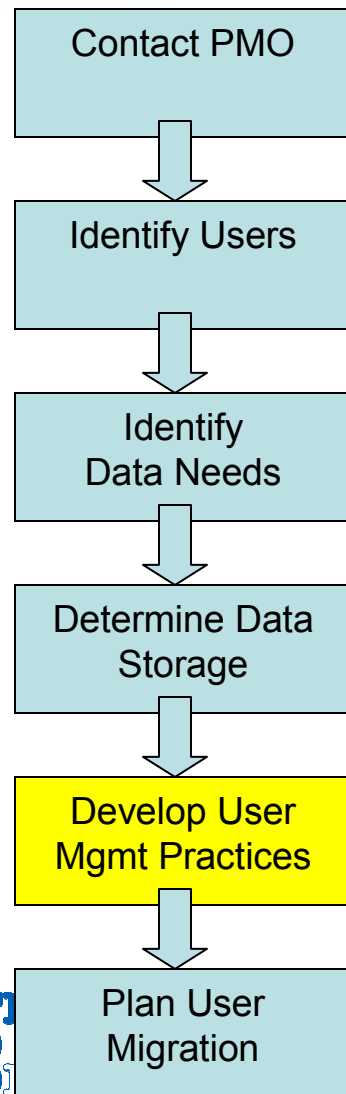Determine Data Storage

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Develop User Mgmt Practices

↓

Plan User Migration

❖ **COREid Tools**

+ Quickest time to implement

+ Provides a robust environment for user management

+ PMO Preferred Approach

- Requires re-training of user administrators

- Limited ability for end users to self-administer

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Integration Overview

Contact PMO

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Identify Users

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Identify
Data Needs

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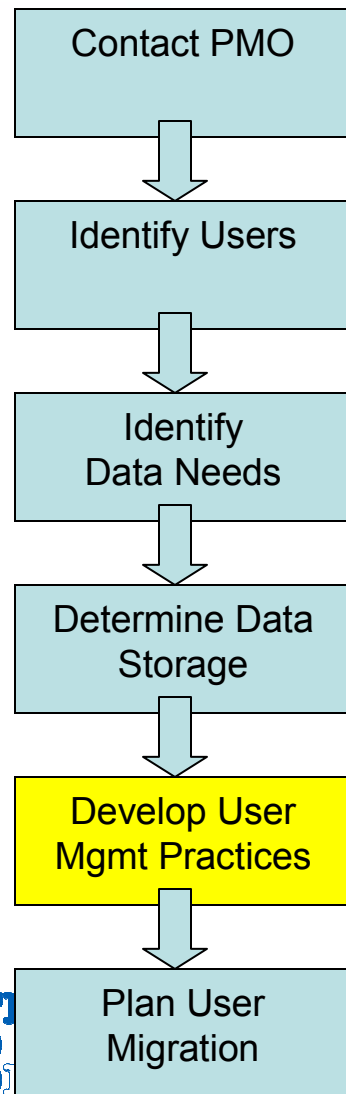Determine Data
Storage

↓

Develop User
Mgmt Practices

↓

Plan User
Migration

❖ **IAM Web Services**

+ Easy to implement using XML-based services

+ Provides wide range of functionality

+ Minor modifications possible to accommodate special requirements

+ PMO Preferred Alternate Approach

- Requires more effort on the part of OEI and Program Offices to implement

Integration Overview

Contact PMO

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Identify Users

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Identify Data Needs

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Determine Data Storage
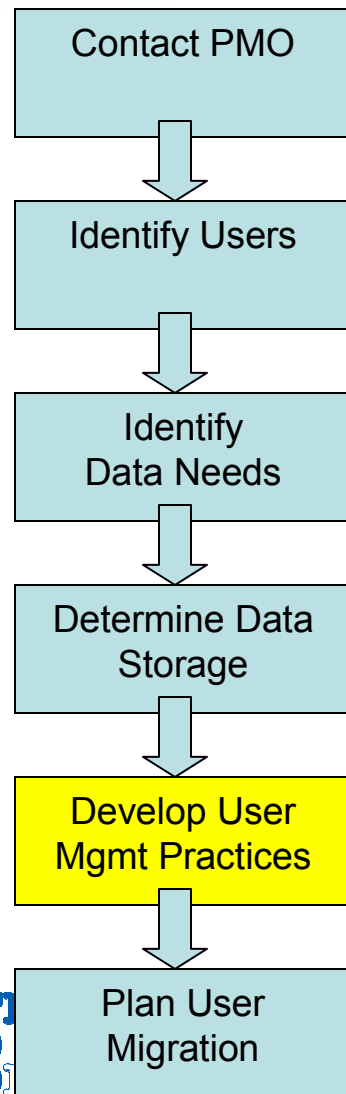
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Develop User Mgmt Practices

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Plan User Migration

❖ **COREid API**

+ Provides significant customization opportunities

- API requires specialized development training

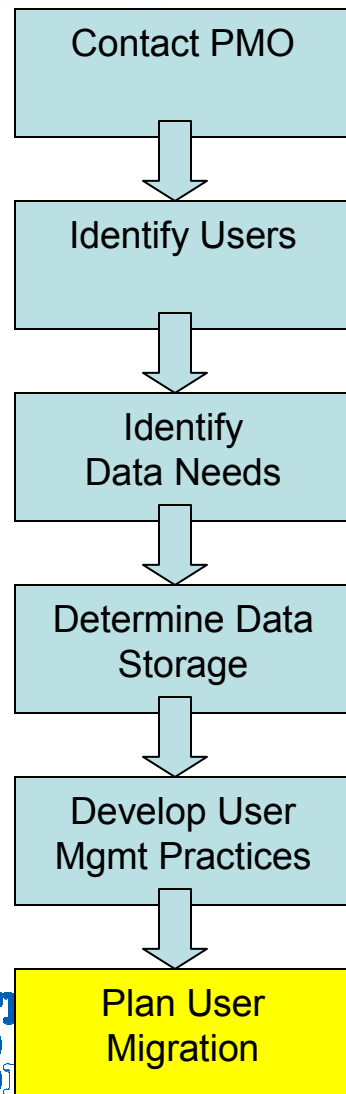- Requires additional security and integration reviews and testing

Integration Overview

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│    Plan User        │
│     Migration       │
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❖ **LDAP Integration with OID**

+ May be only viable option for some COTs

- LDAP query language requires specialized development skills

- Requires extensive security and interoperability review and oversight to limit liabilities to IAM and partner systems

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Contact PMO
↓
Identify Users
↓
Identify Data Needs
↓
Determine Data Storage
↓
Develop User Mgmt Practices
↓
Plan User Migration

❖ **Plan User Migration**

- Determine how many user accounts need to be migrated to the OID

- Map data fields

- PMO can assist in writing data migration scripts

- How will users be notified of changes to account?

- Will users need to re-subscribe to maintain their account?

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Program Office Communications

❖ The joint goal is to steer program offices and other system owners to use the IAM system for user management and access control

- Provides the preferred single sign-on solution for EPA

- Complies with Enterprise Architecture

- Adheres to security procedures and best practices

- Allows integrated user management across IT assets

- Will conform with the HSPD-12 solution for physical identity and facility security

Program Office Communications

❖ Current Partner Systems

- **EPA Portal** – Currently uses IAM to manage accounts for all Portal users

- **Geospatial Services** – Currently integrating geospatial metadata publication processes to allow single sign-on across geospatial services

- **ECMS** – Will use IAM to manage user storage for Hurricane Katrina records

- **CDX** – Discussions underway geared towards merging CDX and IAM external user directories

Common Misconceptions (Page 1)

❖ **Use of IAM requires integration with the Portal**

- The IAM system is separate and stand-alone from the Portal.
- Portal Integration requires IAM Integration, but not vice-versa.

❖ **If I use IAM, I lose the ability to manage my own users?**

- IAM promotes the use of delegated administration.
- OEI controls the base identity of the person (e.g. that Maja Lee is an EPA Employee).
- Local system administrators control access to individual systems (e.g. that Maja Lee has access as a general user to my system)

❖ IAM requires significant system administrator retraining

- While the preferred approach is to use the COREid User Administration Interface, system can maintain their own user management interfaces and use web services to integrate with IAM

❖ IAM cannot support the types of users/roles/data I need to collect

- The extensible nature of OID allows the addition of any application specific data required
- Data can be of any type (text, numerical, binary, encrypted, hashed, etc.)
- IAM can support X.509 certificates and web service security models

Lesson 7: User Provisioning

Overview

❖ User Account Creation

- EPA Employees
- External Users

❖ Community Access

User Account Creation: EPA Employees

❖ All EPA employees are automatically granted access though the directory synchronization process

❖ EPA user information is automatically updated in the Portal when the authoritative information source is updated

User Account Creation: External Users

❖ External Users accounts must be sponsored by an EPA employee

❖ External users may be state users, contractors, consultants, etc.

User Account Creation: External User (cont)
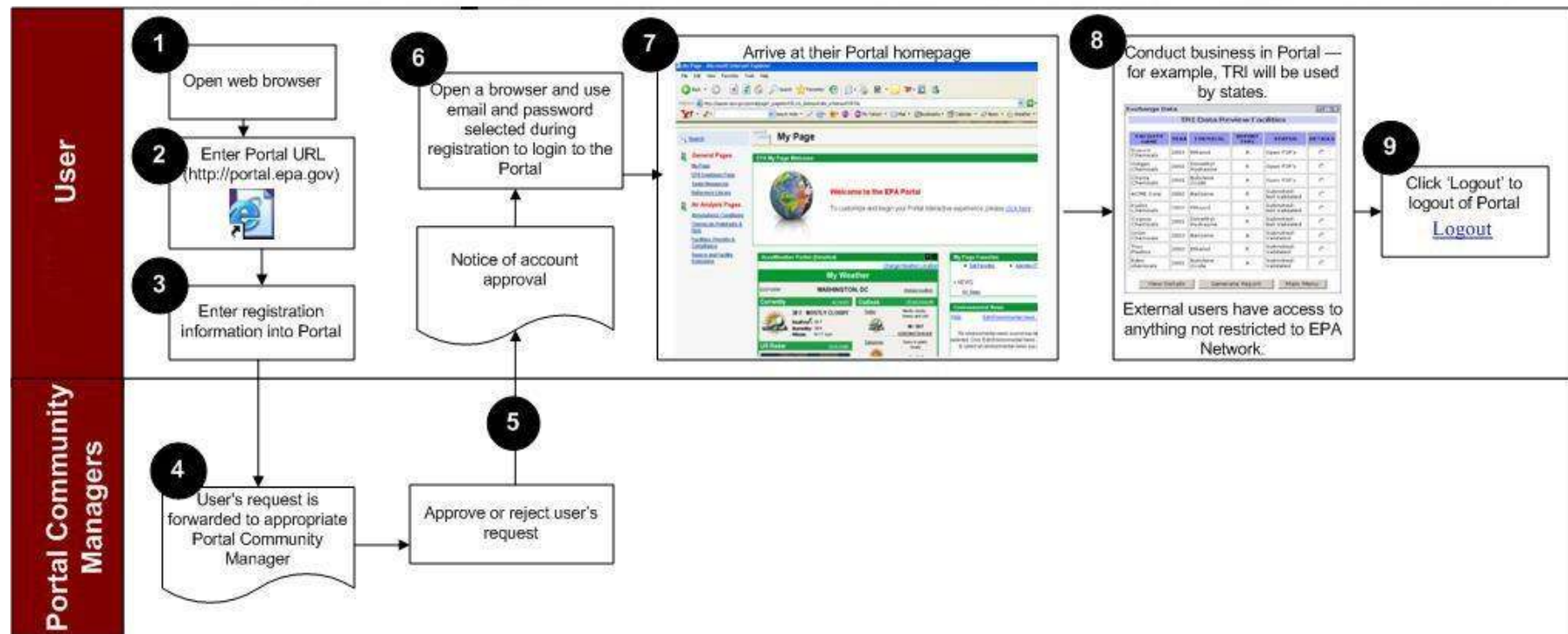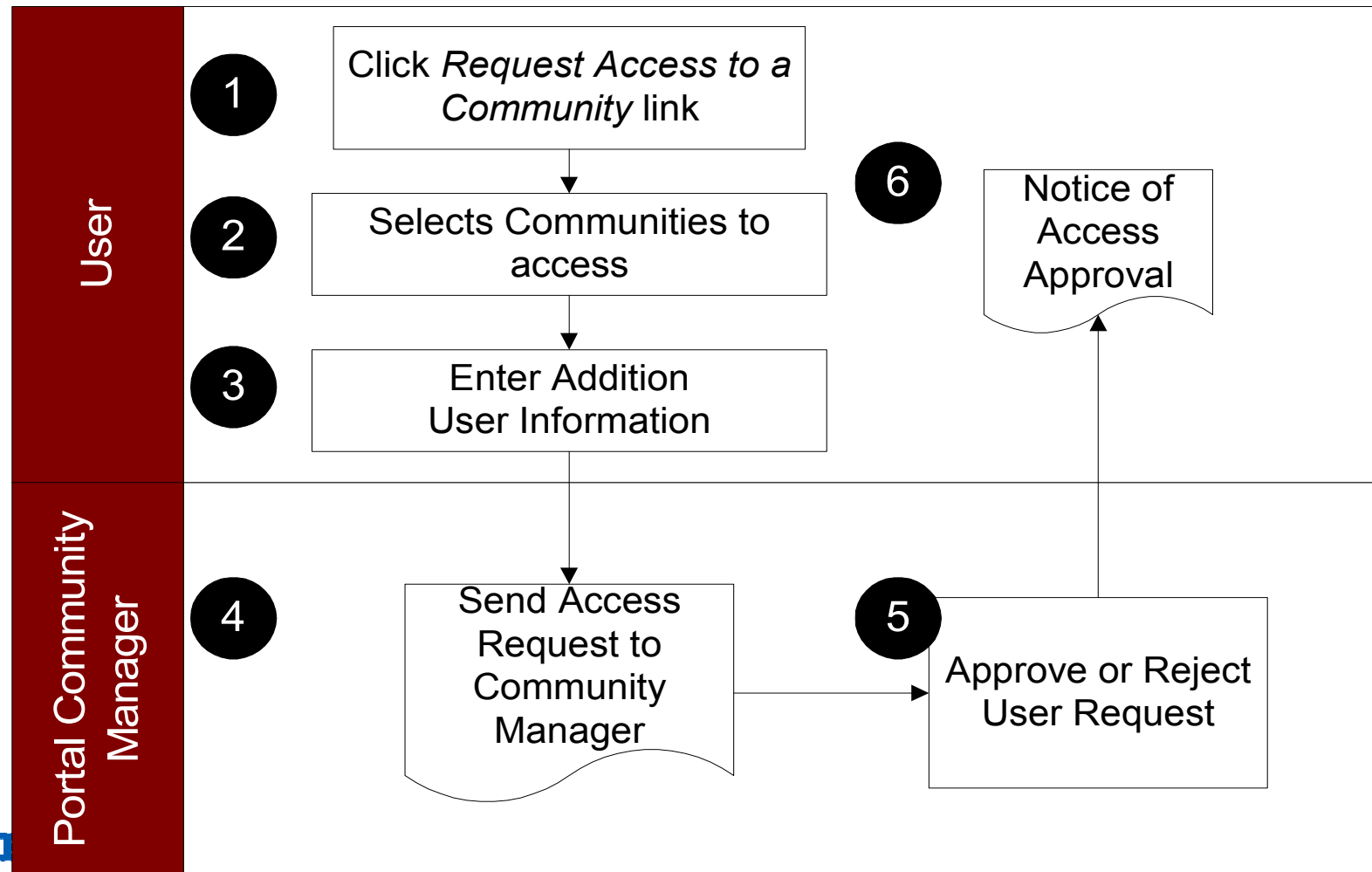
User Account Creation: External User (cont)

1. Open the web browser

2. Enter the URL http://portal.epa.gov

3. The opening page of the Portal will have a link to a registration page. The new user will click on the link and enter their information

4. The request is routed to the appropriate community manager(s)

5. The manager approves or rejects the request and the user gets an email notification of approval or rejection

6. If the user is approved he/she can now log into the EPA Portal using their user name(email address) and designated password

7. Enter the Portal and selected community

8. Conduct business in the Portal

9. Log out

Community Access

User

1. Click *Request Access to a Community* link

2. Selects Communities to access

3. Enter Addition User Information

6. Notice of Access Approval

Portal Community Manager

4. Send Access Request to Community Manager

5. Approve or Reject User Request

Community Access

1. Use Clicks *Request Access to a Community* link

2. User Selects Communities to Access

Community Access (cont)

3. If Additional Information is needed, User fills out additional user information

4. An access request is sent to the community manager.

5. The community manager approves or rejects the user's request

6. If approved, a notice is sent to the user

Lesson 8: Business Case for Using the Portal

Overview

❖ Discuss the implications of developing applications in:

- Multiple independent systems
- Web-based Interface with Other Technologies

❖ Portal development benefits

❖ Example: Geospatial Resource Integration

Multiple independent systems

❖ Higher costs of development and maintenance

❖ Typically end up being developed in different technologies and fail to implement common usability and/or look and feel standards

❖ Delivery of updated client applications becomes cumbersome and difficult

❖ Because of Lack of integration of system, common solutions have a low reusability rate

Web-based Interface with Other Technologies

❖ Web-based interface solves distribution and update issues

❖ High development cost versus the shared Portal libraries:

- Access

- User interface display

- Data integration

- Single sign-on

Portal development Benefits

❖ Reduced O&M Costs of the shared environment

❖ Access to resources that has extensive experience in developing solutions in the Portal Framework

❖ Access to shared components

❖ Current process for Katrina water and sediment sample reporting

1. Receive sample data from numerous sources in diverse formats (SCRIBE, Excel, etc.)

2. Data transformation and transfer is accomplished via scripts and manual process each day

3. QA review, annotate, and build custom SQL and HTML pages to publish and link to Enviromapper

❖ Total cost:

- $100,000 and 2 months to setup

- Over a dozen people involved everyday to update

Portlet– Real Life Examples:
Geospatial Resource Integration – Enhancements for the future

❖ Using GeoSpatial tools and Portal we could improve this process by:

1. Automate data transformation and transfer via the ETL platform
2. Shift to real-time updates (hourly or on event)
3. Present in data mart with reused conformed dimensions (Chem, Location, Time..)
4. Link to multiple map sources via geospatially enabled business intelligence data mart and ESRI products
5. Deliver to end users anywhere instantly via the Portal
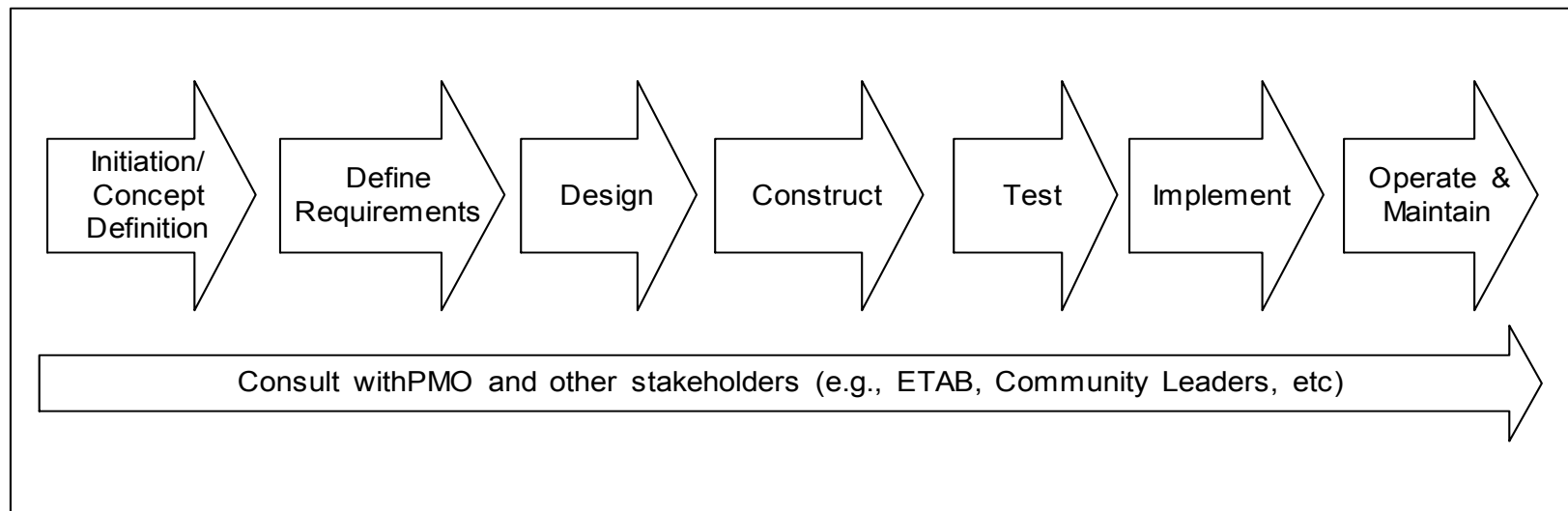
❖ Reduction in cost:

- Remove IT staff from daily refresh ($2,500/day or over $750K/Yr); focus on QA of data
- Improve speed, quality, and flexibility of reports and presentation

Lesson 9: Software Development Lifecycle

Overview

Initiation/Concept Definition → Define Requirements → Design → Construct → Test → Implement → Operate & Maintain

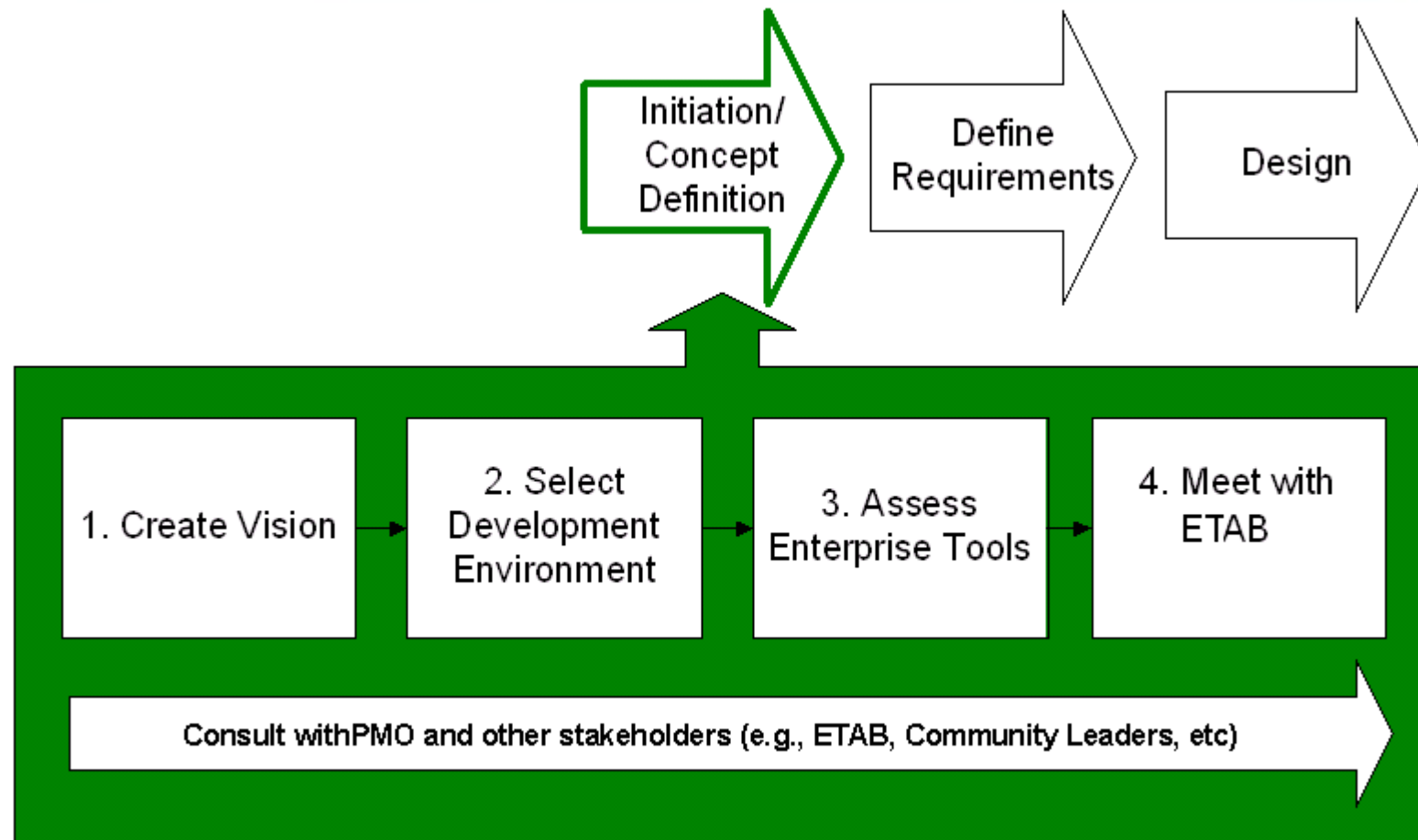Consult withPMO and other stakeholders (e.g., ETAB, Community Leaders, etc)

Lesson 10: Software Development Lifecycle: Initiation/Concept Definition

Overview

Create A Vision

❖ Create a vision document to include (but not limited to):

- Purpose and Function
- Intended Audience
- Stakeholders
- Requirements (both functional and technical)
- Timeframes and constraints

❖ Review with PMO and other stakeholders (e.g., Community Managers, ETAB, etc) as necessary :

- Allows you to identify existing agency and/or portal resources to leverage
- Ensures compliance with TAA

Selecting a Development Environment

❖ Involves determining where and by whom the development work is going to be developed

❖ Who:
  - Existing contractor that has already developed a portal solution for the agency
  - Preferred program office contractor
  - In-house development team

❖ Where:
  - Housed within SEC
  - Program Office development environment
  - Program Office preferred contractor site

❖ The PMO can provide information on all of these choices but remains neutral in the final selection

Assess Enterprise Tools

❖ Look at leveraging other tools within EPA enterprise toolkit

❖ Sample tools:
  - Portal, CDX, SoR, ETL, Geospatial, IAM, Analytical tools

❖ Work with ETAB on enterprise tools:
  - Understand the tool's functionality - Don't try to fit square peg into round hole
  - Licensing implications

Evaluate Cost

❖ Evaluate two major costs:

- Development Costs – Cost to develop the solution
- Operational Costs – Cost to maintain the solution

❖ Costing Plan is being developed to detail pricing information on cost to develop EPA Portal content

❖ Selecting the development environment can have a impact on development costs:

- Space and infrastructure at the SEC (if using the SEC)
- Software Licensing costs (if not using SEC)
- ETAB can help determine all the costs associated with using or not using SEC

Meet with the Meet with PMO and Appropriate Stakeholders

❖ Ensures a unified, enterprise-level solution is created that benefits maximum number of users

❖ Assists in further refining vision

- "Did you think about this?"

❖ Leverages appropriate resources

- "Air community has functionality similar to this that can be leveraged…"

❖ Finalizes process before moving onto next phase in SDLC (Design phase)

Lesson 11: Software Development Lifecycle—Define Requirements

Overview
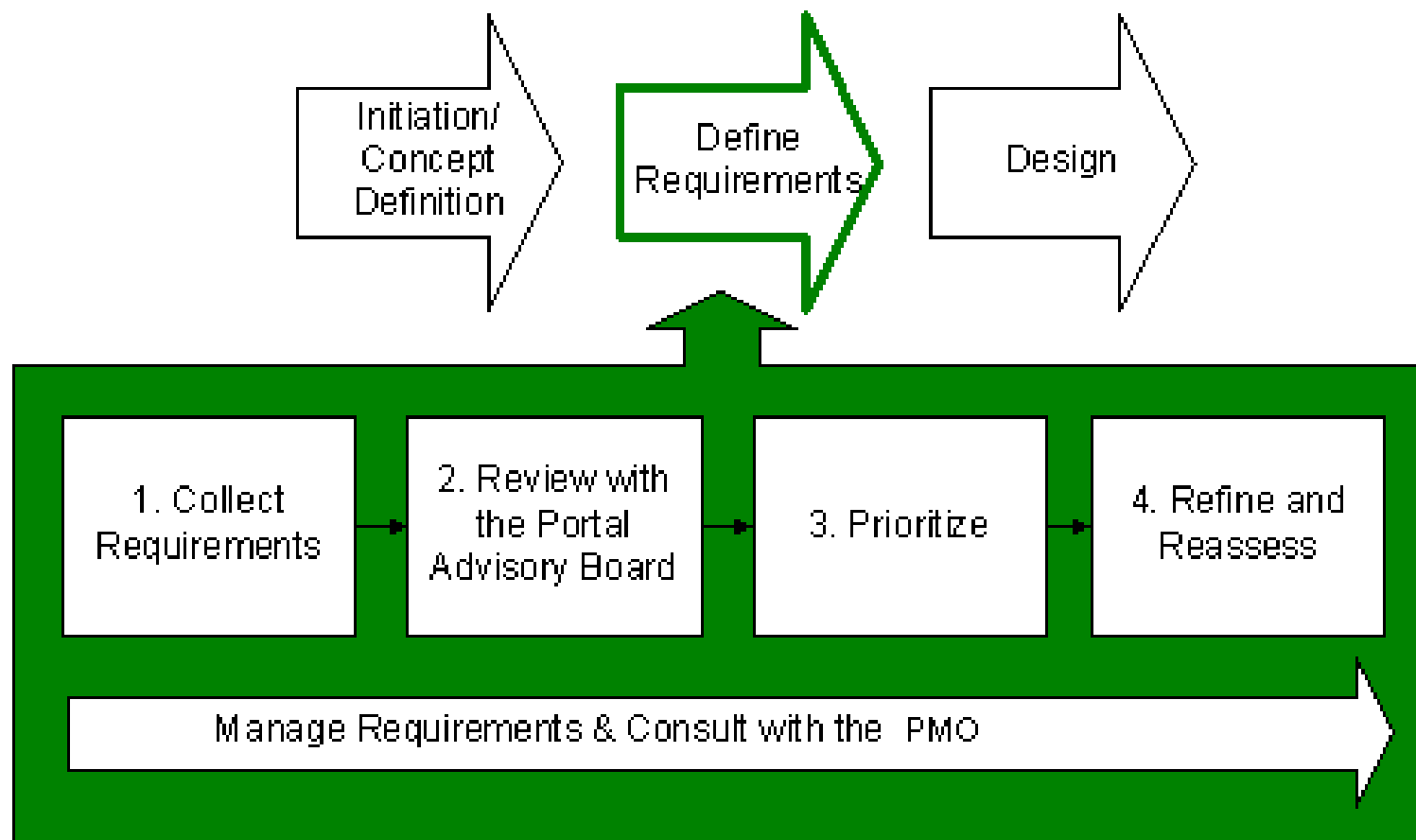
Collect Requirements

❖ The Program Office is responsible for collecting the requirements for the new functionality through whatever methodology they see fit

Review with Enterprise Tool Advisory Board

❖ The Program Office/Regional Development Contractor must review their requirements with the PMO in order to:

- Determine if its requirements are satisfied by other applications that exist in the Portal
- Ensure that there is no overlapping scope with other initiatives
- Receive feedback on the requirements that can influence the Design phase
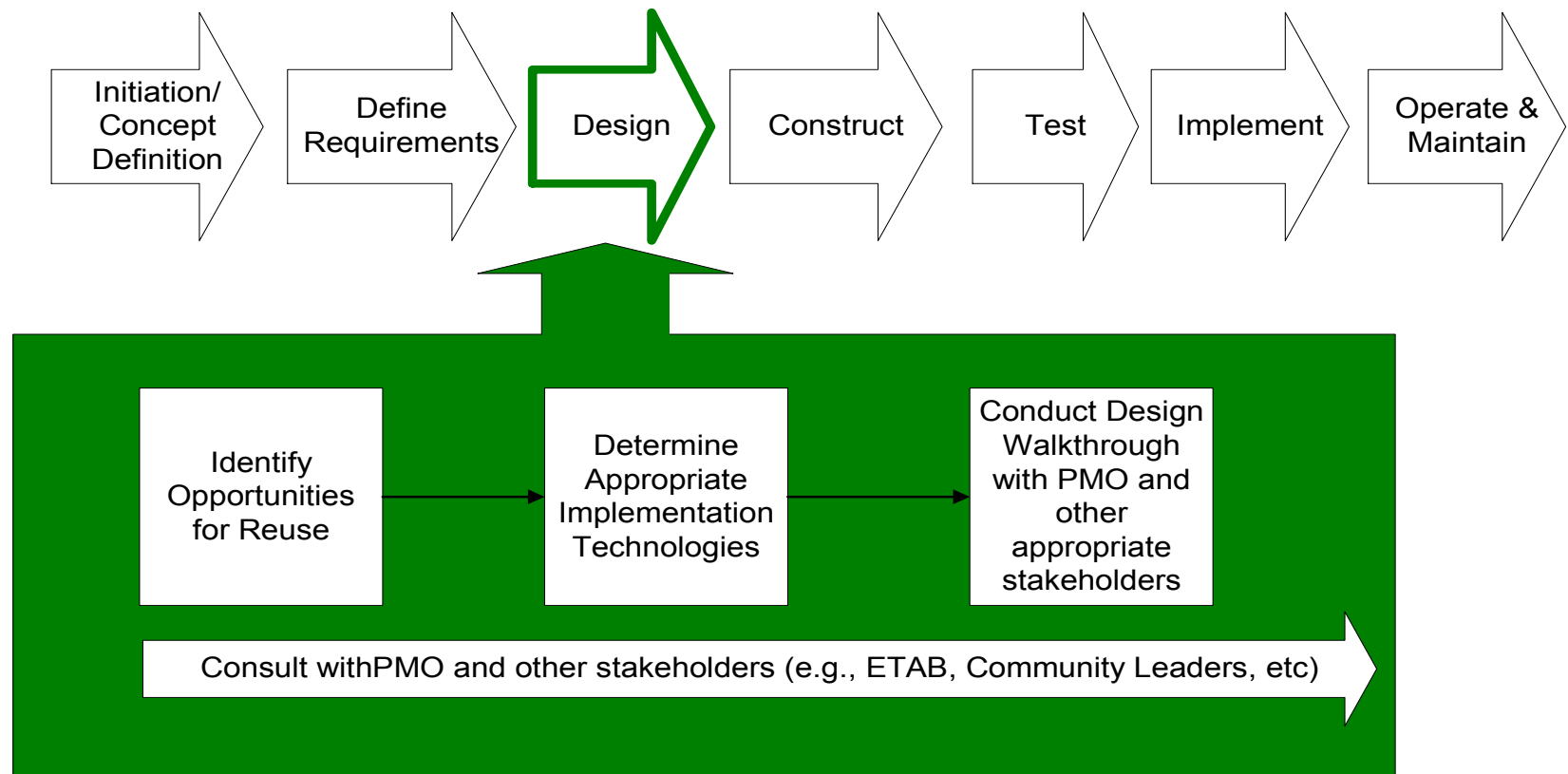- Discuss timeframes and priorities
- Coordinate schedules

Manage Requirements

❖ Program Office/Regional Development Contractor must comply with the PMO's Change Management procedures in order to ensure efficient integration of new/modified functionality into the portal

❖ Changes to the requirements must be shared with the PMO

Lesson 12: Software Development Lifecycle: Design

Initiation/ Concept Definition → Define Requirements → **Design** → Construct → Test → Implement → Operate & Maintain

Identify Opportunities for Reuse → Determine Appropriate Implementation Technologies → Conduct Design Walkthrough with PMO and other appropriate stakeholders

Consult withPMO and other stakeholders (e.g., ETAB, Community Leaders, etc)

ENTERPRISE TOOLS WORKSHOP

OFFICE OF ENVIRONMENTAL INFORMATION

Design Phase

❖ In addition to prescribed EPA SDLC activities, portal projects should undertake the following activities:

- Identify Opportunities for Reuse
- Determine Appropriate Implementation Technologies
- Conduct Design Walkthrough with PMO and other appropriate stakeholders

Identify Opportunities for Reuse

❖ Portal architecture built upon componentization and reuse

❖ Determine what portlets are already available and if they can meet your needs

- Base Oracle portlets
  - OmniPortlet
  - Web Clipping Portlet
  - HTML Portlet
  - Other "Builder" Portlets

Identify Opportunities for Reuse (cont'd)

- ❖ Extended Oracle portlets
  - Full listing available at http://portalcatalog.oracle.com
  - Provided by Oracle partners
- ❖ Existing EPA portlets
  - Environmental News, Weather, etc.
  - Community Portlets
- ❖ COTS portlets
  - Often cheaper to buy than to build for common functionality
  - Process in place for acquisition

Determine Implementation Technologies

❖ Portal supports a variety of implementation technologies

  • *e.g.*, Java, PL/SQL, PDK, Struts, etc

❖ Implementation technologies should be based on

  • Community requirements

  • Approved technologies

  • Development team skill sets

❖ Approved technologies become part of the portal framework

Draft Design and Review

❖ Design should include technical details of portal implementation:

- ERD & UML diagrams
- Portlet technical specifications
- Configuration requirements

❖ Once your portal/community design is completed it should be presented to the PMO:

- Reviews new functionality being developed by the Program Offices to identify opportunities for collaboration and reuse
- Provides guidance to Program Offices new to the Portal on best practices for portal development

Lesson 13: Software Development Lifecycle—Construction

Initiation/ Concept Definition → Define Requirements → Design → **Construct** → Test → Implement → Operate & Maintain

Built-In Portlets

Create Portlet Containers → Create Portlets → Select Portlets & Configure

Custom Portlets

Develop Framework → Add Logic → Validate Provider → Deploy Application → Register Portlet

Consult withPMO and other stakeholders (e.g., ETAB, Community Leaders, etc)

ENTERPRISE TOOLS WORKSHOP

OFFICE OF ENVIRONMENTAL INFORMATION

Creating Portlet Containers

❖ There are three types of containers:

- Page Groups
  - Contain one or more pages that relate to a specific topic or are relevant to a specific audience

- Pages
  - Pages contained in page groups and contain one or more regions

- Regions
  - Parts of a page (e.g. header, footer, right column, left column, center column, etc.) and contain portlets or items that provide content and functionality to the end user.

Creating Portlet Containers (cont)

❖ The portlet containers are further limited by the PMO and by the Look and Feel Standards to ensure a consistent end user experience

❖ Only the PMO may:

- Approve the addition of new page groups
- Approve deviation from the Look and Feel standards related to required regions on a page

Creating Portlets

❖ There are several methods for creating portlets for an application

❖ Reuse of Existing Portlet without Modification

• Existing portlets can be placed on pages without modification

❖ Reuse of Existing Portlet with Modification

• Take existing portlets and modify them to meet the needs of your client

❖ Customization of Out-of-the-Box Portlet

• For most out-of-the-box portlets, a wizard is available to assist in the creation of the portlet

• Documentation that provides detailed implementation details:

▪ Chapter 7 of the **Oracle® Application Server Portal User's Guide**, 10*g* (9.0.4), Part No. B10358-01, September 2003

▪ http://download-west.oracle.com/docs/cd/B10464_03/portal.904/b10358.pdf for information on how to create pages and Part III of Oracle Application Server Portal Developer's Guide 10g

▪ http://download-west.oracle.com/docs/cd/B14099_01/portal.1012/b14134/toc.htm for supporting reference on how to create portlets using the portlet repository.

COTS Portlets

❖ Implementation of COTS Portlet:

- To implement a COTS portlet, you will need to:
  - Import the COTS portlet into the Portal environment
  - Register the portlets
  - Perform any configuration required
- The instructions that come with the COTS Portlet should be followed to ensure correct implementation

Using Built-in Portlets

❖ Select portlet type from the available Built-In portlets (HTML, Web Clipping, OmniPortlet, Survey, etc.)

❖ Define portlet properties or definitions based on the type of portlet selected

❖ For additional information about portlet configuration, refer to Part III *Building Portlets* of the Part III of Oracle Application Server Portal Developer's Guide 10g Release 2

Custom Portlet Development

❖ **Develop Framework**
- Developers need to create:
  - Basic portlet code
  - Necessary configuration files for the provider framework using the JAVA PDK Portlet Wizard.
- Developers would come up with their framework to define classes and elements

❖ **Add Logic**
- Developers begin to plug in portlet logic
- Developers write elements and components into the framework

Custom Portlet Development (cont)

❖ Test Portlet

- Portlets can be tested locally and also within the portal before deployment to ensure they are functioning correctly

❖ Deploy Application

- Export code to the Oracle Application Server
- The Application Server maintains the code as a source provider

❖ Register Portlet:

- Register your code as a source to allow the new portlet to be displayed on a Page in the Portal hierarchy

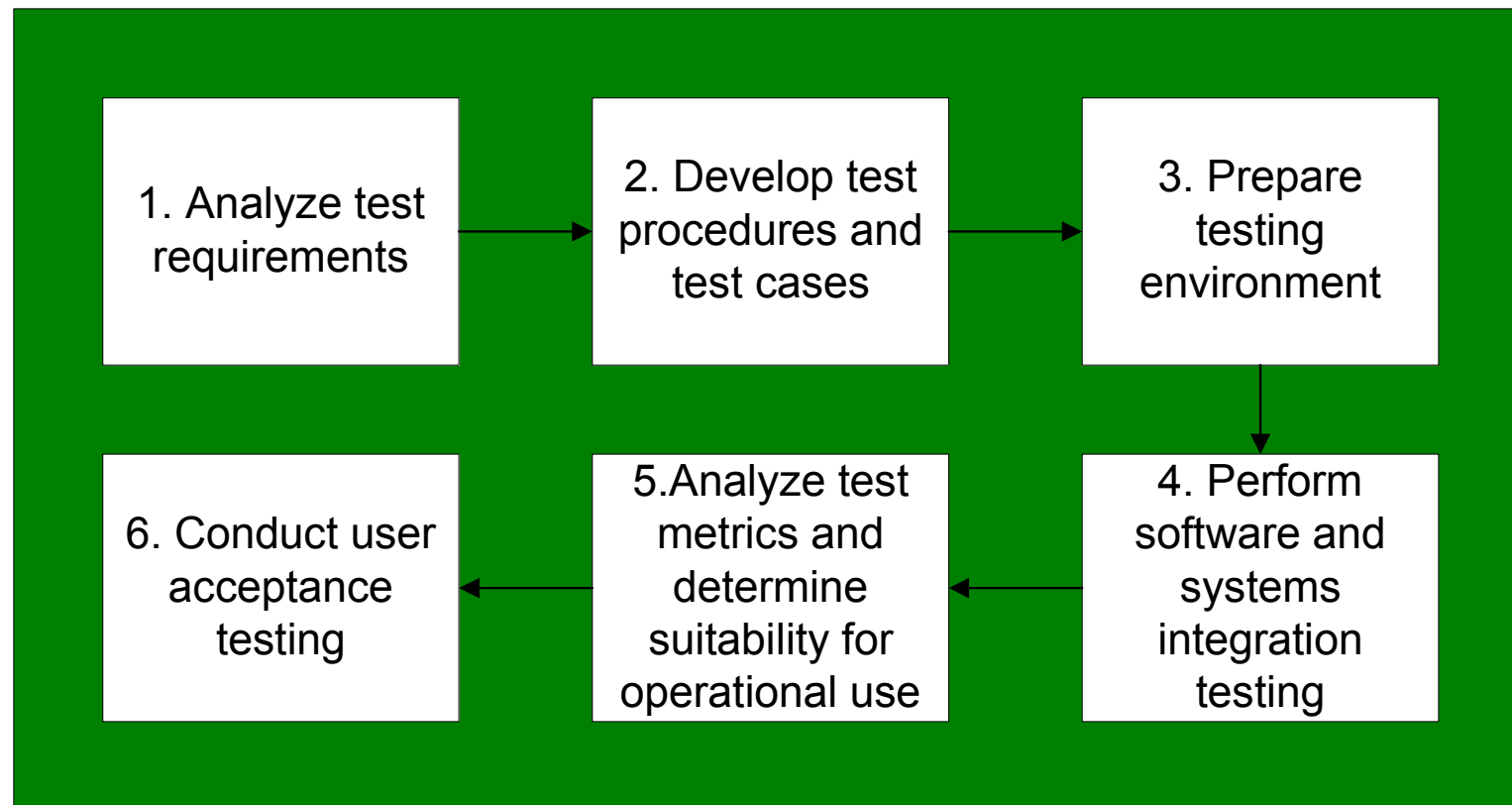# Provide Regular Status to the Enterprise Tool Advisory Board

❖ Throughout the Construct phase, Program Office/Regional Development Contractor consults with the PMO, ETAB, and Portal Technical Advisory Group for sound technical advice

❖ The developer should also communicate status on their progression so the PMO can coordinate timing and priority with other portlet developers

Lesson 14: Software Development Lifecycle—Testing

Overview

1. Analyze test requirements → 2. Develop test procedures and test cases → 3. Prepare testing environment → 4. Perform software and systems integration testing → 5. Analyze test metrics and determine suitability for operational use → 6. Conduct user acceptance testing

Step 1—Analyze Requirements

❖ Review requirements documentation with the testers

❖ Clarify the requirements to ensure that testers understand the scope of each requirement

❖ Provide clarification as to how the requirements have been translated into system functionality.

❖ Review NCC's system standards to understand how NCC will test their application before it is allowed to enter into the Portal Production environment

Step 2 – Develop test procedures and test cases

❖ Provide detailed instructions for the set-up, execution and evaluation of the results for a test case

❖ Identify the objectives and goals of the test, and assumptions and constraints associated with performing the test

❖ Define the test inputs, execution conditions and expected results

❖ Provide traceability back to the requirement

❖ Reviewed with the test team manager to ensure they are accuracy

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Step 3 – Prepare testing environment

❖ Portal Framework Development Contractor
  - Prepared by the Portal Framework development contractor
  - Order all necessary equipment and manage the receipt, installation and setup of the development environment

❖ Development lead/manager
  - verify the operation and setup of the environment to determine if there are any issues that will affect development or the test procedures to be executed

❖ The Test Team manager
  - Work with the development lead/manager to identify which staff will need access to the testing environment
  - Will work with the development team to ensure that processes are in place for configuration management

❖ EPA
  - Review the test environment to ensure that the environment is ready for integration testing

Step 4 – Perform software integration testing

❖ Different Types of Tests:
- Functional tests
- Stress tests
- Security tests

❖ If an error is detected, the tester will:
- Analyze the error
- Create problem reports to record the conditions and findings
- Perform regression testing to start analysis

❖ All defects will need to be tracked and managed so that all of the defects are resolved before closing out the Test Phase

Step 5 – Analyze Test Metrics and Determine Suitability for Operation

❖ Metrics should be reviewed from any defect reports to determine when the system is ready to move forward to staging at NCC

❖ All testing results will be analyzed before they are moved into the Staging environment
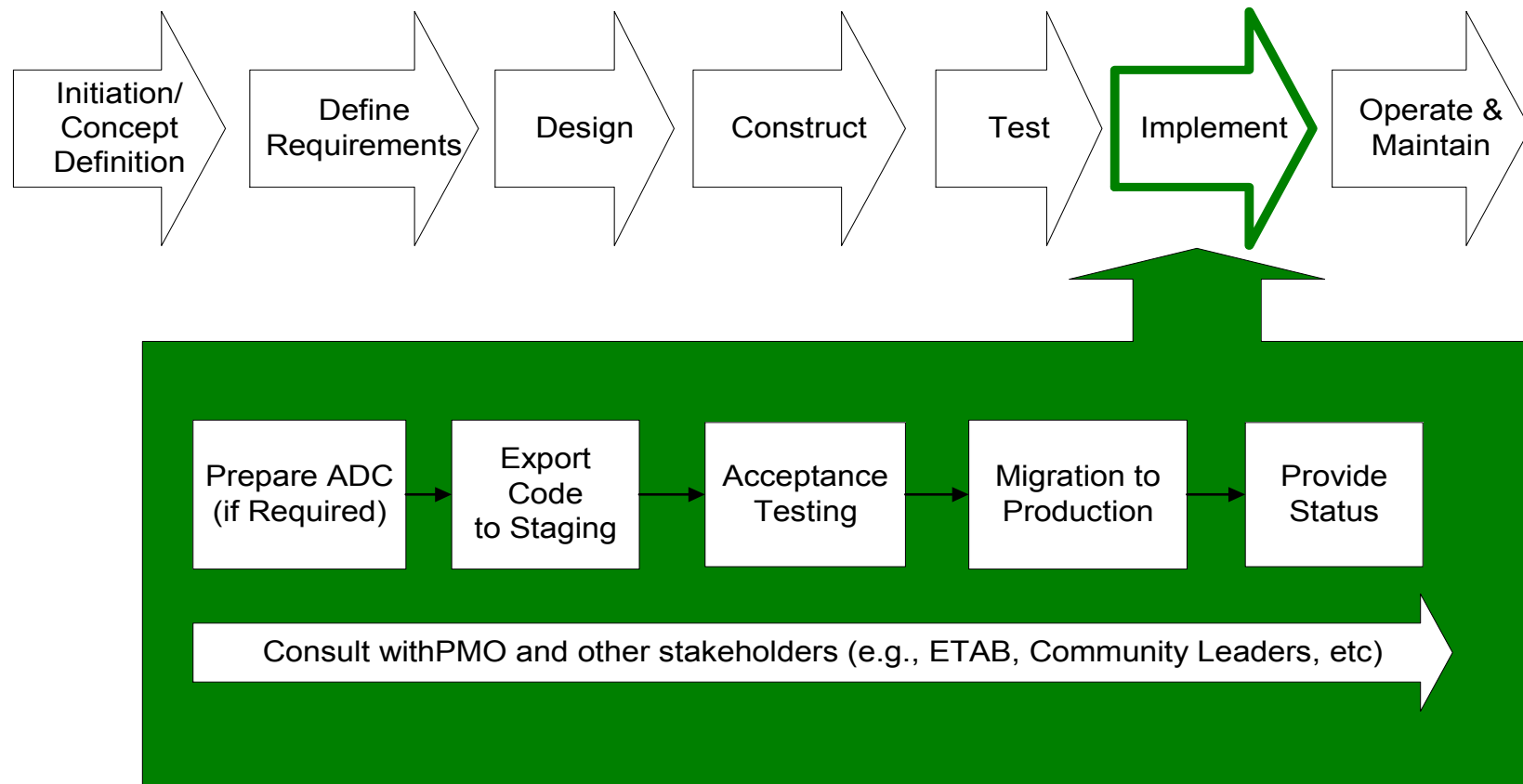
Step 6 – Conduct user acceptance testing

❖ EPA will determine which EPA users will perform user acceptance testing

❖ Acceptance testing is to demonstrate to EPA and the end users, that the Portal satisfies their requirements

❖ End users will test the Portal using the test procedures developed in Step 2

❖ Users will validate that the system performs according to the procedures and that no defects were detected

❖ After successful user acceptance testing:

- EPA will approve the results of the acceptance testing and the requirements and
- Development contractors will ensure the Portal is made available in a production environment

Lesson 15: Software Development Lifecycle—Implement

Where are we?

| Initiation/ Concept Definition | → | Define Requirements | → | Design | → | Construct | → | Test | → | **Implement** | → | Operate & Maintain |

Process flow under Implement:

Prepare ADC (if Required) → Export Code to Staging → Acceptance Testing → Migration to Production → Provide Status

Consult withPMO and other stakeholders (e.g., ETAB, Community Leaders, etc) →

Prepare Application Deployment Checklist (ADC)

❖ NCC determines whether your solution will require the submission of an ADC

❖ An ADC is required if your development solution:
  - Makes use of data sources that were not previously available via the Portal
  - Requires uses COTS products that were not previously in use in the Portal Framework
  - Requires changes to any of the Portal Server application settings.
  - Alters or requires operations and maintenance in addition to that currently provided to the Portal Framework
  - Requires the creation of a new database
  - Alters the current population of portal end users (e.g. you require public access and the Portal only provides internal access).
  - Alters any of the information on the current Portal ADC

❖ The current portal ADC is available from the PMO upon request

Prepare Application Deployment Checklist (ADC)

- ❖ Obtain the appropriate forms from the NCC
- ❖ Filed as early as possible
- ❖ Review with NCC and any make necessary changes. Possible reasons for ADC change:
  - To conform with security standards
  - To keep from interfering with existing systems functionality
- ❖ Filing early ensures the least amount of development rework to comply with these requests

Export Code to NCC Staging Environment

❖ The Program Office/Regional Development Contractor

- Delivers their transport sets and Java packages to SEC

❖ SEC

- integrates the transport sets into EPA Enterprise Portal

- conducts the system integration and testing

- Sends the integrated transport set, along with the Version Description Document (VDD), to NCC for staging deployment

User Acceptance Testing

❖ NCC:

- Deploys the EPA Portal into staging
- Runs AppScan against EPA Portal
- Performs the Java Security Review (make take two weeks)

❖ The Program Office/Regional Development Contractor:

- Contacts EPA Application Managers for user acceptance testing

❖ EPA Portal Manager (Terry Grady):

- Requests for Java Security Review

NCC Migrates to Production

❖ The EPA Portal Manager authorizes production deployment after successful:

- Java Security Scan
- User acceptance testing

❖ A separate maintenance message if the down time is required for application deployment

Provide Status to PMO

❖ The Program Office/Regional Development Contractor should seek regular consultation with the PMO and other stakeholders (e.g., Community Leaders, ETAB, etc) to ensure rapid resolution of any issues that may arise

❖ Regular status updates will allow the PMO to properly address your concerns with respect to the timing and priority of testing your solution and moving it into production

Lesson 16: Software Development Lifecycle—Operate and Maintain

OFFICE OF ENVIRONMENTAL INFORMATION
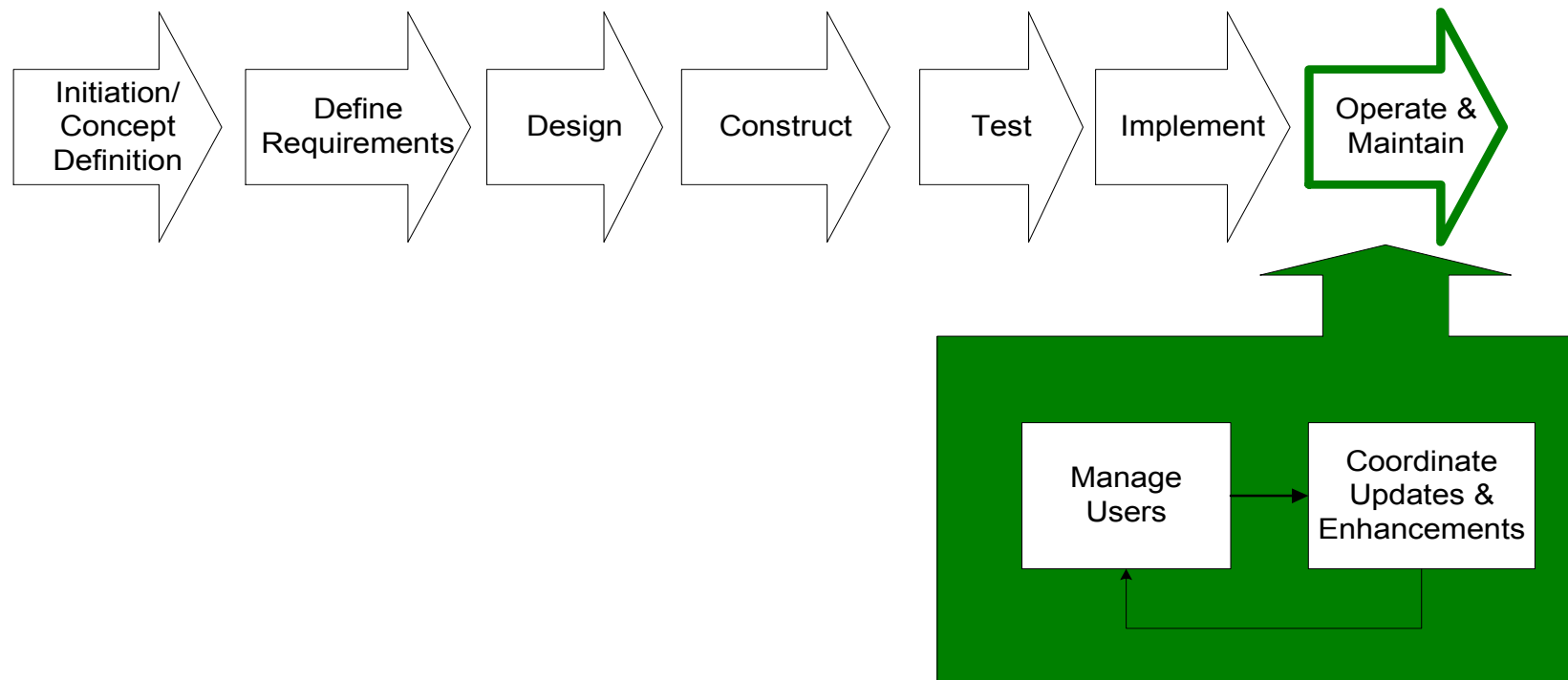
Manage Users

❖ If permission restrictions have been applied to the Page Groups, Pages or Portlet associated with the Program Office/Regional Development Contractor's Portal objects, the team is responsible for granting or revoking access

❖ New users in the Portal will be able to identify their particular interest in the Portal and System Owners will be able to control how user access rights are provisioned

Coordinate Updates and Enhancements

❖ The Program Office/Regional needs to only manage their application and not the Portal system

❖ Recurring application maintenance activities need to have detailed procedures and provided to the NCC staff for execution

❖ All enhancements and upgrades made to the application will need to maintain source code version control

Lesson 17: Day 1 Review

Day 1 Review

❖ EPA Groups and their roles in Portal Application Development

❖ The Enterprise Architecture

❖ The EPA Portal and its Offerings

❖ EPA Portal Look and Feel Standards

❖ IAM

❖ User Provisioning

❖ Software Development Lifecycle

❖ Demonstration: Demonstrate the different aspects of the current version of the Portal

Questions?

Lesson 18: Systems Engineering Center (SEC)

Systems Engineering Center (SEC)

❖ Center of Excellence for Environmental, Administrative, and Research Systems Engineering

❖ Meeting Rooms:
- Access to SEC, Internet, or EPA LANs
- Built in projectors and workstation
- Video Conferencing

❖ SOA and Portal Application Integration Facility for EPA:
- Training Classroom
- Test and Integration Lab on EPA LAN

SOA & Portal Integration Center

❖ Mission:

- Promotes standard and common platforms, foundation services, tools, and reusable components

❖ What to expect from SEC:

- Integration of Program Office/Regional Development Contractor development work products into EPA Portal
- Knowledge transfer/sharing regarding EPA Portal development methodology and platform

❖ What SEC expects from Program Office/Regional Development Contractor teams:

- Portal community work products
- Follow facility security rules of the road

IAM Integration Center

❖ Mission

- Promotes the application-centric Identity and Access Management (IAM) framework

❖ What to expect from SEC

- IAM Concept of Operations
- Reusable IAM SOA component services
- System integration plan

❖ What SEC expects from development teams

- Application specific IAM requirements
- Project schedule
- Integrated Product Team

Development and Integration Infrastructure

❖ Network Channels
 • Gray: SEC Development
 • Green: EPA QA LAN - Testing and Integration

❖ Five Linux Servers on each Channel
 • Oracle 10g Application Server Middle Tier
 • Oracle 10g Application Server Infrastructure
 • Oracle Collaboration Suite
 • COREid Identity Server
 • COREid Access Server

❖ One Linux Server @e-Rulemaking DMZ network
 • IAM Framework Web services

Security

❖ **Building Rules**

- Access Hours: 9am – 5pm
- Discuss Restricted Access to Floor(s)

❖ **Network Rules**

- No LAPTOPS brought into the facility
- Follow the Network Rules from the lecturers

Labs and Demonstrations

Lesson 19: Development Schedules Highlights

Overview

❖ Schedule Highlights: The list of tasks that should be in a software development schedule for the EPA Portal

Schedule Highlights

Task	Groups
Create a Vision Statement and submit it to the ETAB	Program Office/Regional
Review Vision Statement with ETAB	ETAB Program Office/Regional
Select a Development environment	Program Office/Regional Program Office/Regional Development Contractor
Assess enterprise tool use	Program Office/Regional Program Office/Regional Requirements Analysis Contractor
Evaluate Cost	Program Office/Regional ETAB
Finalize Vision Statement	Program Office/Regional ETAB
Collect Requirements	Program Office/Regional Program Office/Regional Requirements Analysis Contractor

Schedule Highlights (cont)

Task	Groups
Review Requirements with the ETAB	Program Office/Regional ETAB
Prioritize Requirements	Program Office/Regional
Design Software	Program Office/Regional Development Contractor
Present Design to ETAB	Program Office/Regional ETAB
Construct Software	Program Office/Regional Development Contractor
Prepare and ADC	Program Office/Regional Development Contractor

Schedule Highlights (cont)

Task	Groups
Develop Test Cases	Program Office/Regional Testing Contractor
Prepare testing Environment	Portal Framework Development Contractor
Perform software Integration Testing	Program Office/Regional Testing Contractor
Move to Staging	NCC
Java Security Testing	NCC
Conduct User Acceptance Testing	Program Office/Regional Testing Contractor EPA Users ETAB
Migration to Production	NCC

Lesson 20: Course Wrap-up

Overview

❖ Course Review

❖ What's Next?

Course Review

❖ **EPA Groups and their roles in Portal Application Development (EPA)**
- The Portal Advisory Board
- NCC

❖ **The Enterprise Architecture**
- Enterprise Architecture Overview
- Pieces of the Enterprise Architecture
    - Portal
    - CDX
    - System of Registries (SoR)
    - ETL Tools
    - Geo Spatial Services
    - IAM
    - Analytical capability and Tools

❖ **The Portal and All it Has to Offer**
- Portal Architecture
- Available Portlets
- The different Portal environments

Course Review (cont)

❖ **Portal Look and Feel Standards**
  - Look and Feel
    - Page Regions:
      - Header
      - Footer
      - Left navigation
      - Body
    - Portlet Standards:
      - Resource Portlets
      - Single Function Portlets
      - Multi-Feature portlets
    - Style
  - Taxonomy

❖ **Identity and Access Management System**
  - IAM system architecture
  - Directory synchronization plan

Course Review (cont)

- ❖ **SEC (LM)**
  - SEC's Role
  - How to gain access
  - Hardware
    - ▪ Servers
    - ▪ Workstations
    - ▪ Miscellaneous Equipment
- ❖ **User Provisioning**
  - User Account Creation
    - ▪ EPA Employees
    - ▪ External Users
  - Community Access

Course Review (cont)

❖ **Software Development Lifecycle—Overview**
- Initiation/Concept Definition
- Define Requirements
- Design
- Construction
- Test
- Implement
- Operate & Maintain (O&M)

❖ **Software Development Lifecycle—Initiation/Concept Definition**
- Creating a vision
- Selecting Development Environment
- Access Enterprise Tools
- Evaluate Cost
- Meet with Portal Advisory Board

Course Review (cont)

❖ **Software Development Lifecycle—Define Requirements**
- Collect Requirements
- Review with the Portal Advisory Board
- Prioritize
- Refine and reassess
- Manage Requirements

❖ **Software Development Lifecycle— Design**
- Identify Opportunities for Reuse
- Determine Appropriate Implementation Technologies
- Create Design
- Portal Advisory Board Design Walkthrough
- What Portlets are available: http://portalcatalog.oracle.com
- Acquisition of COTS Portlets

Course Review (cont)

❖ **Software Development Lifecycle—Construction**
- Create Portlet Containers
- Create Portlets
- Select and Configure Portlet
- Provide Regular Status Updates
- Additional Steps are required during this Phase if the information system involved Custom Portlet Development using the JAVA Portal Development Kit (PDK).
  - Develop Framework
  - Add logic
  - Validate Provide
  - Deploy Application
  - Register Portlet

❖ **Software Development Lifecycle—Testing**
- Analyze Requirements
- Develop Test Scripts
- Execute Test scripts
- Analyze Results
- Provide Status

Course Review (cont)

❖ **Software Development Lifecycle—Implement**
- Prepare Aplication Deployment Checklist
- Export Code to Staging
- Acceptance Testing
- Migration to Production
- Provide status

❖ **Software Development Lifecycle—Operate and Maintain**
- Manage Users
- Coordinate Updates and Enhancements

❖ **Development Schedules Highlights**

What's Next?

❖ You are Members of EPA's Portal Development Community! This means that you will:

- Be able to participate in development standards discussions
- Be able to share the details of projects they are working on
- Be able to get help to issues that they encounter in their development
- Be able to provide help to others

❖ You are ambassadors to your clients!

- Tech your clients about the EPA Portal and what is out there
- Encourage your clients to participate on the ETAB

End of Course

❖ Thank you for your time!